

THE WORLD'S NUMBER ONE PC GAMES MAGAZINE

PC GAMER[®]

Baldur's Gate



**RESIDENT
EVIL 3**
HANDS-ON WITH
THE STUNNING
REMAKE

INTERVIEW

WORLD OF WARCRAFT

SECRETS OF THE
SHADOWLANDS

DUNGEONS &
DRAGONS
RETURNS TO PC

✚
VALORANT
NEW WORLD
HALO: THE MASTER
CHIEF COLLECTION
CHIVALRY 2
& MORE!

FUTURE

ISSUE 342



HARDWARE

KEYBOARDS REVIEWED

IT'S TIME TO GO
MECHANICAL



FROM
£3199

Infinity Xtreme Titanium

Windows 10 Home

Intel® 10th Gen i9 10980X Processor

NVIDIA GeForce MSI RTX 2080Ti 11GB Video Card
ASUS TUF X299 MK 2 Mainboard
4x8GB 3200mhz Corsair Vengeance LPX Memory
500GB Samsung 970 EVO Plus SSD
2TB Seagate SATA-III HDD
CoolerMaster H500 RGB Gaming Case
Corsair Vengeance 750M Power Supply
Corsair H100i RGB Platinum Cooler w/ 2x MF120R Fans
TP-Link Archer T6E Dual Band Wireless Card



HD 7.1



Optional



Optional



FROM
£1669

Infinity X99 Ti

Windows 10 Home

Intel® Core™ i9-9900KF Processor

NVIDIA GeForce MSI RTX 2070 SUPER 8GB Video Card
MSI Z390-A PRO Mainboard
16GB DDR4 2400mhz Corsair Vengeance LPX Memory
500GB Samsung 860 EVO SSD
2TB Seagate SATA-III HDD
CoolerMaster Masterbox MB530P Gaming Case
Corsair Vengeance 650M Power Supply
Cooler Master Master Liquid Lite 120 Cooling System
PRO Overclocking



HD 7.1



Optional



Optional



FROM
£759

Infinity X66

Windows 10 Home

Intel® Core™ i5-9400F Processor

NVIDIA GeForce MSI GTX 1660 6GB Video Card
MSI Z390-A PRO Mainboard
8GB DDR4 2400mhz Corsair Vengeance LPX Memory
2TB Seagate SATA-III HDD
Corsair 220T White Gaming Case
Cooler Master 400W Power Supply
Cooler Master Master Liquid Lite 120 Cooling System



HD 7.1



Optional



Optional



FROM
£1299

Infinity X99 GT

Windows 10 Home

Intel® Core™ i7-9700KF Processor

NVIDIA GeForce MSI RTX 2060 SUPER 8GB Video Card
ASUS PRIME Z390-P Mainboard
16GB DDR4 2400mhz Corsair Vengeance LPX Memory
240GB Kingston A400 SSD
2TB Seagate SATA-III HDD
Cooler Master Masterbox MB520 Black
Cooler Master 600W Power Supply
Cooler Master Master Liquid Lite 120 Cooling System
PRO Overclocking



HD 7.1



Optional



Optional

FROM
£529

Infinity X44

Windows 10 Home

Intel® Core™ i3-9100F Processor

NVIDIA GeForce MSI GTX 1650 4GB Video Card
ASUS Prime H310M-R Mainboard
8GB DDR4 2400mhz Corsair Vengeance LPX Memory
1TB Seagate SATA-III HDD
Cyberpower Onyxia Black Mid Tower Gaming Case
CoolerMaster 400W power supply
Intel Standard Cooler



HD 7.1



Optional



Optional



FROM
£1599

Tracer III 15 Slim RTX-2070

Windows 10 Home

Intel® Core™ i7-9750H Processor

Intel HM370 Chipset
NVIDIA GeForce RTX™ 2070 8GB DirectX® 12.1
16GB 2666MHz DDR4 Corsair Vengeance Memory
1TB Intel 660p M.2 NVMe PCIe SSD
17.3" FHD 144Hz IPS Display
Intel Gigabit Wireless-AC 9260 Wi-Fi + Bluetooth



5.5 hrs



Bluetooth 5



2x USB 3.1
1x USB 2.0

1x USB type C

Built-in 720P HD Webcam

2.5 kg

AC WIFI

1x HDMI
2x Mini Displayport

ORDER TODAY! **03333 237 776**

Work easy. Play hard.  Windows

Get £20 off using code PCGAME20 at the checkout



CUSTOM BUILD **GAMING PCs**

WWW.CYBERPOWERSYSTEM.CO.UK

Follow Us!    @CYBERPOWERUK |  @CYBERPOWER_UK

All Desktop systems come with 3 year Limited Warranty + lifetime toll free tech support
730 Baldwin Park Blvd., City of Industry, CA 91746. CyberPowerPC, CyberPowerPC Logo and, Unleash The Power are trademarks of CyberPower Inc. Copyright © 2018 CyberPower. All rights reserved. All prices are subject to change without notice or obligation. Celeron, Celeron Inside, Centrino Inside, Centrino Logo, Core Inside, Intel, Intel Logo, Intel Core, Intel Inside, Intel Inside Logo, Intel ViiV, Intel vPro, Itanium, Itanium Inside, Pentium, Pentium Inside, ViiV Inside, vPro Inside, Xeon, and Xeon Inside are trademarks of Intel Corporation in the U.S. and other countries. All prices are subject to change without notice or obligation. CyberPower is not responsible for any typographical or photographic errors. CyberPower is not responsible for any typographical or photographic errors.

Intel Inside®.
Extraordinary
Performance
Outside.





ELITE AUDIO— UNCONTESTED

Raise your play with the headset
engineered for high-resolution gaming.



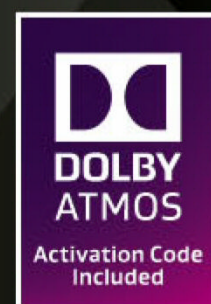
GAME AUDIO DIAL

3.5MM CONNECTOR + VOLUME CONTROL

LIGHTWEIGHT EXOSKELETON

TUNED ACOUSTIC CHAMBERS

50 MM DRIVERS



plantronics.com

XBOX ONE®

PS4®

PC

COMPATIBLE

Available at:



Dolby Atmos® requires an Xbox One or Windows 10 compatible device, and a Microsoft account and login. Activation for one device only.
©2018 Plantronics, Inc. Dolby Atmos and the double-D symbol are trademarks of Dolby Laboratories. All trade names and trademarks
are the property of their respective owners. 8.18 240347

PC GAMER

#342 APRIL 2020

Future Publishing Ltd

Quay House, The Ambury, Bath BA11UA

Tel 01225 442244 | Email letters@pcgamer.comwww.pcgamer.comfacebook.com
[/pcgamer](https://www.facebook.com/pcgamer)youtube.com
[/pcgamer](https://www.youtube.com/pcgamer)twitter.com
[/pcgamer](https://twitter.com/pcgamer)twitch.tv
[/pcgamer](https://www.twitch.tv/pcgamer)club.pcgamer.com

PC GAMER PRESENTS

**PC
GAMING
SHOW**[pcgaming
show.com](http://pcgamingshow.com)

All contents © 2020 Future Publishing Limited or published under licence. All rights reserved. No part of this magazine may be used, stored, transmitted or reproduced in any way without the prior written permission of the publisher. Future Publishing Limited (company number 2008885) is registered in England and Wales. Registered office: Quay House, The Ambury, Bath BA1 1UA. All information contained in this publication is for information only and is, as far as we are aware, correct at the time of going to press. Future cannot accept any responsibility for errors or inaccuracies in such information. You are advised to contact manufacturers and retailers directly with regard to the price of products/ services referred to in this publication. Apps and websites mentioned in this publication are not under our control. We are not responsible for their contents or any other changes or updates to them. This magazine is fully independent and not affiliated in any way with the companies mentioned herein.

NEXT ISSUE ON SALE: 2 April

If you submit material to us, you warrant that you own the material and/or have the necessary rights/permissions to supply the material and you automatically grant Future and its licensees a licence to publish your submission in whole or in part in any/all issues and/or editions of publications, in any format published worldwide and on associated websites, social media channels and associated products. Any material you submit is sent at your own risk and, although every care is taken, neither Future nor its employees, agents, subcontractors or licensees shall be liable for loss or damage. We assume all unsolicited material is for publication unless otherwise stated, and reserve the right to edit, amend, adapt all submissions.



We are committed to only using magazine paper which is derived from responsibly managed, certified forestry and chlorine-free manufacture. The paper in this magazine was sourced and produced from sustainable managed forests, conforming to strict environmental and socioeconomic standards. The manufacturing paper mill and printer hold full FSC and PEFC certification and accreditation.



Member of the
Audit Bureau of
Circulations
12,708
January-
December 2018

For press freedom
with responsibility**FUTURE**Connectors.
Creators.
Experience
Makers.

Future plc is a public company quoted on the London Stock Exchange (symbol: FUTR)

www.futureplc.com

Chief executive **Zillah Byng-Thorne**
Non-executive chairman **Richard Huntingford**
Chief financial officer **Penny Ladkin-Brand**

Tel +44 (0)1225 442 244

“FOR PC GAMERS, D&D WILL ALWAYS EVOKE A SENSE OF REVERENCE”



In many ways, Dungeons & Dragons is the most significant ancestor of modern gaming. Levelling up, fighting monsters, exploring vast open worlds – Gary Gygax was doing it all in the 1970s with paper and pencils.

Particularly for PC gamers, D&D will always evoke a sense of reverence. How could it not, with so many iconic

adaptations? From *Neverwinter Nights*, to *Icwind Dale*, to *Planescape: Torment*.

And, yes, *Baldur's Gate*, now triumphantly returning with the RPG masters at Larian taking the reins. We've been out to see it, and it's looking as magical as a 10d6 fireball.

ROBIN VALENTINESpecialist in
Attacks of opportunity

Twitter

@robinvalentine

This month

Had nightmares about
Mr Tentacle-Skull.**ROBIN VALENTINE**
PRINT EDITORrobin.valentine@futurenet.com**SUBSCRIBE TO
PC GAMER**Check out our
latest offer!
SEE p60

The PC Gamer team

**FRASER BROWN**Specialist in
Living one turn at a time

Twitter

@FraserIBrown

This month

Wrote not one but two massive features. We had to cast Cure Light Burnout on him.

**WES FENLON**Specialist in
Bomb defusing

Twitter

@wesleyfenlon

This month

Checked out an old shooter made new, and a new shooter that feels suspiciously old...

**TYLER WILDE**Specialist in
Bigger boats

Twitter

@tyler_wilde

This month

Massacred medieval knights, sinister undead, and tourists just trying to enjoy the beach.

**ANDY KELLY**Specialist in
Evading the
persistent undead

Twitter

@ultrabrilliant

This month

Discovered an even worse person to have a drink with than Mr X.

Contents

#342
APRIL 2020

SUBSCRIBE TO
PC GAMER
Check out our
latest offer!
SEE p60



Monitor

08 THE TOP STORY

A less than triumphant return.

10 THE SPY

The latest rumours investigated.

12 SPECIAL REPORT

A council of players calling the shots.

Previews

16 World of Warcraft: Shadowlands

20 Resident Evil 3

22 Maneater

24 New World

26 Chivalry

28 Desperados 3

EARLY ACCESS

30 Cook Serve Delicious 3

Features

32 Baldur's Gate III

D&D returns to PC.

38 Valorant

Riot reveals its new shooter.

44 Halo: The Master Chief Collection

Behind the scenes at 343.

52 Sokpop Collective

The indie developers enjoying a never-ending game jam.

32



16 WORLD OF WARCRAFT: SHADOWLANDS

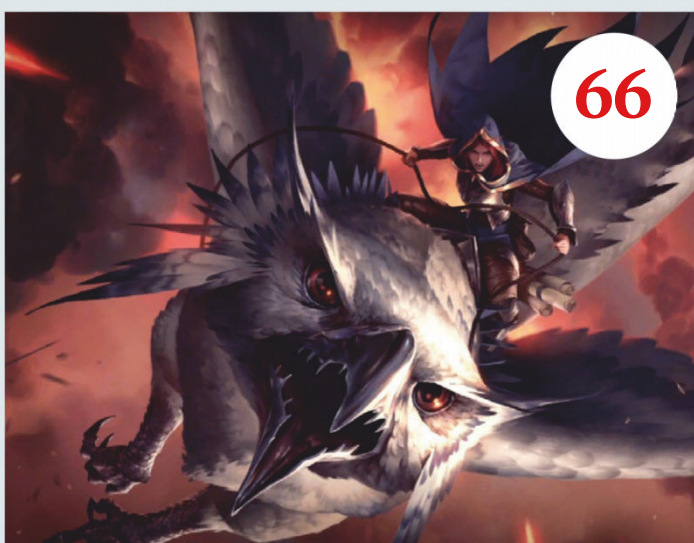
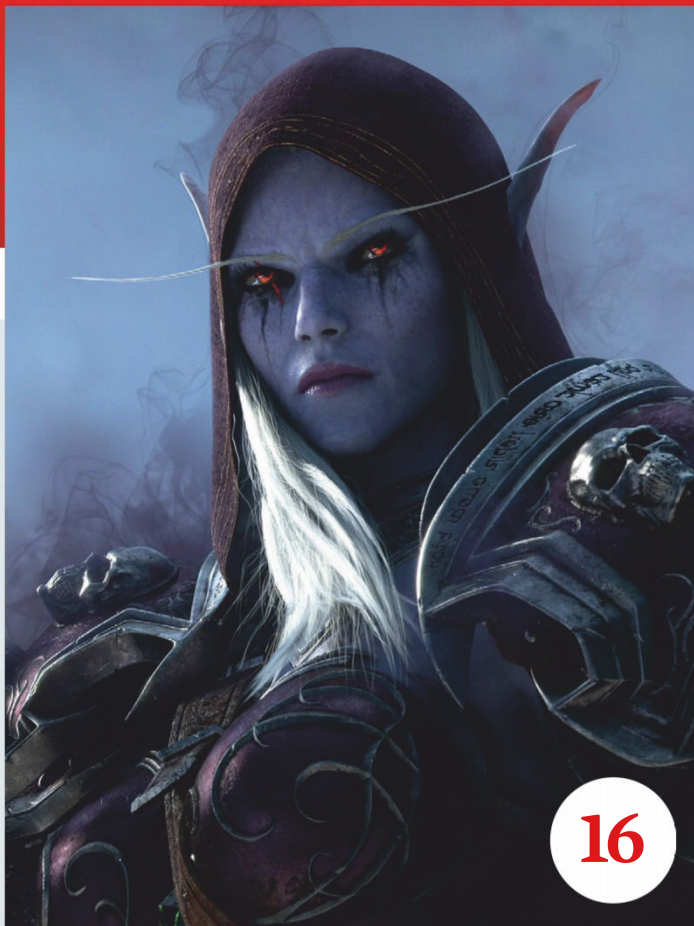
Insights into the new expansion.

32 BALDUR'S GATE III

A modern sequel to the beloved series, from perhaps the best RPG developer of 2020.

44 HALO: THE MASTER CHIEF COLLECTION

Bringing console classics to PC.



52 SOKPOP COLLECTIVE

Meet the team of developers putting out two new games every single month.

66 LEGENDS OF RUNETERRA

Can Riot's new spin-off make its mark in the crowded world of online card games?

96 KEYBOARDS RATED

Switch to a mechanical keyboard today – and find the perfect one for your gaming needs.

Reviews

- 66** Legends of Runeterra
- 70** Kentucky Route Zero
- 72** Lair of the Clockwork God
- 74** The Dark Crystal: Age of Resistance Tactics
- 76** Warcraft III: Reforged
- 80** Might & Magic: Chess Royale
- 82** Deathtrap Dungeon
- 84** Through the Darkest of Times
- 86** Dragon Ball Z: Kakarot
- 88** The Pedestrian

FREE GAMES

- 90** Hive Time
- 91** Madness of the Coastal Structure
- 91** Haunted Garage

THEY'RE BACK

- 92** Hellblade: Senua's Sacrifice
- 93** Ghostbusters: The Video Game
- 93** The Blackwell Legacy
- 93** The Darkside Detective
- 93** Ghost Master

Hardware

96 GROUP TEST

The best mechanical keyboards.

100 TECHREPORT

New advances in chip technology.

102 BUYER'S GUIDE

Build your perfect PC.

Extra Life

106 NOW PLAYING

Our gaming exploits this month.

110 UPDATE

Quake II gets a new lease of life.

112 MOD SPOTLIGHT

Stardew Valley made even bigger.

116 HOWTO

Get started in Legends of Runeterra.

118 DIARY

Can there be peace in Total War?

122 WHY I LOVE

Climbing Hitman 2's leaderboards.

124 REINSTALL

Making the case for Phoenix Wright.

128 MUST PLAY

Emma reveals her favourites.

MONITOR

NEWS | OPINION | DEVELOPMENT



"How do I dig myself out of this hole?"

FROSTY RECEPTION

WARCRAFT III: REFORGED hasn't put the developer back on top

The launch of *Warcraft III: Reforged* seemed like it was going to be an easy win for Blizzard – it had already remastered one beloved RTS, and people were ravenous for another strategy game set in Azeroth. Instead, it's been hammered by negative user reviews and Blizzard is now offering no-questions-asked refunds. Poor communication, delayed and missing features, and changes to the end-user licence agreement (EULA) have overshadowed the launch – and that was pretty shaky in its own right too.

Back in 2018, *Warcraft III: Reforged* was pitched as something between a remaster and remake, with new art, graphics, cutscenes, UI and even changes to the campaign. Blizzard showed off one of the new cutscenes at the time, which had a more dynamic camera and animated

characters. Many of these features were walked back at BlizzCon 2019, but unless you were following the event, you would have never known.

The actual changes ended up being quite a bit more conservative. Most of them are cosmetic, but even those were scaled back. The new models and buildings look great, and visually the maps have changed quite a bit, but players dubbed it a 'downgrade' despite them. Cutscenes and animations took the biggest hit, being much closer to the 2002 version than expected. It's still more of an upgrade than *StarCraft 2 Remastered*, but players thought they were getting something different.

**THE ACTUAL
CHANGES ENDED UP
BEING QUITE A BIT
MORE CONSERVATIVE**

LONG ROAD

KENTUCKY ROUTE ZERO



Seven years after it released the first chapter, Cardboard Computer has finally launched the fifth and final episode of *Kentucky Route Zero*. First Kickstarted back in 2011, the off-beat indie adventure has received critical acclaim throughout its journey. You can check out our review on p70. ■ **RW**

SECOND VERSE

ANTHEM REBOOT



Bioware has announced, via an official blog post, that it's going back to the drawing board on mega-flop *Anthem*. It's now working on a full overhaul and relaunch of the game, much like *Final Fantasy XIV* did. But can it ever actually be redeemed, or is the developer just throwing good money after bad? ■ **RV**

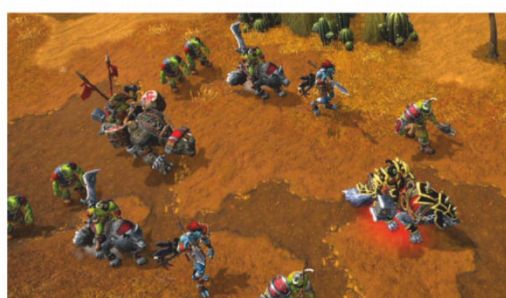
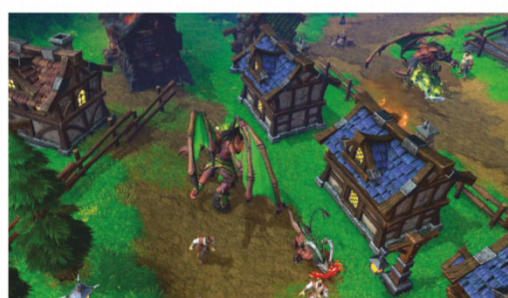


BLADE RUNNER

WITCHER SWORDS



Polish swordsmith Artur Wysocki runs Kaer Morhen Forge, creating authentic replicas of Geralt's swords with the full blessing of *Witcher* dev CD Projekt RED. For €400-900 you can own your very own made-to-order sword, in silver or steel, providing it's legal to own one where you live. ■ **AK**



ABOVE, TOP: The touted UI changes didn't surface in time for launch.

ABOVE, BOTTOM: Blizzard has changed its refund policy, giving them out automatically.

UNRANKED

It's also missing a few features from its predecessor. Clans and competitive ladders are, at time of writing, due in a future update, but they seem like odd omissions for a game that's trying to resurrect a multiplayer scene. These features were also lost from the original game, as it now shares a client with *Reforged* to make them compatible.

Blizzard also made some changes to its EULA that gives it ownership over all the mods made for *Warcraft III*. Most of it is the same stuff you find in other games that are popular with modders, allowing them to licence or use the mods as they see fit, but a key difference is that Blizzard gets the copyright and sole ownership, likely hoping to avoid losing out on another *DOTA*.

At launch, there were issues with players being unable to log in or create custom games, while some bugs from the extensive multiplayer beta continued to crop up in the live game. Blizzard has been quick to tackle the problems with hotfixes and a patch, however, though the rest of its players' concerns will take a lot longer to address.

This disappointing remaster is the latest in the string of decisions from Blizzard that have been criticised. Rather than celebrating a classic RTS, *Reforged* has become another example of how the dev has changed.

Fraser Brown, Wes Fenlon

Highs & Lows



HIGHS

Epic Games Store

Epic has announced that its free game giveaways will continue all through 2020.

Counter-Strike

CS: GO has seen record numbers of players flocking to it, breaking its record twice in as many weeks.

Horizon: Zero Dawn

PS4 exclusive *Horizon: Zero Dawn* might be making the leap to PC, according to rumours.

Overwatch

League matches and other competitions have been postponed due to the coronavirus.

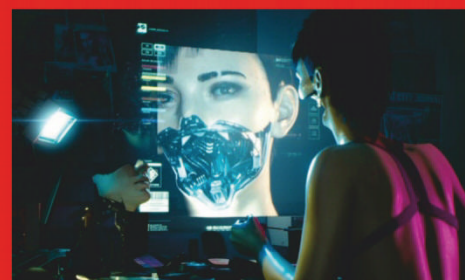
System Shock 3

Layoffs at developer OtherSide Entertainment leave the future of the sequel in doubt.

Delays

Cyberpunk 2077 and *Marvel's Avengers* have both been delayed until September.

LOWS



The Spy

BUT WHO WATCHES THE SPY?

The Spy slips out of a dark alley and onto the high street, makeshift bandages and a bloodstained shirt hidden underneath a thick coat regrettably stolen from a market stall. The Spy scans the crowded thoroughfare, looking for... something. A trace of recognition; of surprise; of cold, predatory triumph. Reader, the job went bad. Suddenly, something unexpected happens. A man, lost in thought, walks headfirst into a lamp-post.

What thoughts so fully consumed this man's attention as to cause his face and head to collide with a much sturdier object? Perhaps the better question is what didn't? There's just so *much*... please now picture The Spy gesticulating widely in an attempt to convey the breadth and depth of how much there is.

Six years ago, the Crimean Peninsula was annexed by Russia, leading, by way of an intricate web of geopolitical agreements and global trade deals, to the near-collapse of the US dairy industry. One hundred and six years ago, Gavriilo Princip stopped at a local sandwich shop after a failed assassination attempt, leading, by way of a driver mistakenly turning down the wrong sidestreet, to one of the largest global conflicts in human history. Approximately 13.8 billion years ago, the universe

appeared, leading, by way of time and an abundance of matter, to the existence of anglerfish. It's a wonder people aren't walking into lamp-posts all of the time.

And yet, despite the existence of anglerfish, and the bewildering series of events that led to them, somehow we manage to go about our day. People still go to work. People still meet up with friends. People still escape – beaten and bruised, but defiantly alive – from elaborate traps of their enemy's making. People still listen to Ubisoft's financial calls to get a sense of the next year of its tent pole releases. Five such releases are due before April 2021. Three are known already: *Watch Dogs Legion*, *Gods & Monsters* and *Rainbow Six Quarantine*. The remaining two are, according to Kotaku's Jason Schreier, a new *Assassin's Creed* – which is long-rumoured to be about Vikings – and a new *Far Cry*. Not present in that list are space-faring prequel *Beyond Good & Evil 2*, which is likely still some ways off, and multiplayer pirate adventure *Skull & Bones*, which has reportedly been rebooted multiple times since its reveal in E3 2017. Also not present is the 'AAA VR Project' that Ubisoft is now hiring for, which will be based on an existing series.

FISHING FOR LUCKIES

Some might argue that VR is too niche a platform to be worth investing in, but The Spy can see the appeal. Virtual realities are built by a team of people to a specific, manageable set of rules – a kind of shallow proximity of simulation in a space that can be measured, studied and understood. And, while these playground facsimiles *could* contain anglerfish, they would do so for a reason. Not necessarily a good reason – maybe an art director just thinks they're neat – but nonetheless an active, traceable thought process. That's a comfortable contrast from *real* reality, in all its infinite chaos.

Hours later, The Spy approaches the safe house, giddy from blood loss and with a head full of anglerfish. Suddenly, something unexpected happens. The Spy, lost in thought, walks headfirst into a lamp post. Spy out (cold). ■
The Spy

A NEW ASSASSIN'S CREED – WHICH IS LONG-RUMOURED TO BE ABOUT VIKINGS



THE SPY

The Spy promises to stop watching nature documentaries before missions.

This month in... 2010



1 2010 was an exciting time for MMOs. The cynical *World of Warcraft* cash-ins were (mostly) dead, and a new wave of projects promised to evolve and improve the genre. And sure, looking back, many fell short of that aim – yes, we're looking at you, *APB* – but we also got plenty of genuinely great online games, including this month's cover feature star, Bioware's *Star Wars: The Old Republic*.

ISSUE
212, April 2010
ON THE COVER
Star Wars: The Old Republic
IN THE CINEMAS
Kick-Ass

2 Rich McCormick marks his debut issue by gaming on a laptop for a week. Luckily the laptop could handle *Barkley, Shut Up and Jam: Gaiden*, so he was fine.



3 Not everything was rosy in the land of PC gaming. Previews for this issue detail *Crysis 2* and *Splinter Cell Conviction* – both shallower, more consolised versions of once classic, complex PC series. *Crysis 2* did, at least, run pretty well on the PCs of its day, very much unlike its predecessor.

msi[®]



FIRST **7**nm TECHNOLOGY GAMING LAPTOP

 **Alpha 15**



AMD
RADEON **RX**
5500M

AMD
RADEON
FreeSync

Windows 10 Home / Windows 10 Pro | up to AMD Ryzen™ 7 Processor and Radeon™ RX5500M Graphics

WHERE TO BUY

MSI.COM

amazon.co.uk

OVERCLOCKERS UK

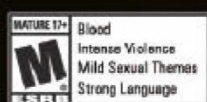
SCAN

go.com



laptops
direct

Scan to
learn more



Tom Clancy's Ghost Recon® Breakpoint © 2019 Ubisoft Entertainment. All Rights Reserved. Tom Clancy's, Ghost Recon, the Soldier Icon, Ubisoft and the Ubisoft logo are registered or unregistered trademarks of Ubisoft Entertainment in the U.S. and/or other countries.

*Product features and specifications may vary by model.

Special Report

PCG INVESTIGATIVE



Smite's 2019 Olympians attend the first annual summit at Hi-Rez Studios.

COUNCIL CULTURE

How **HI-REZ** is tapping into its community for game insights

In the summer of 2019 a group of Olympians assembled in Atlanta, Georgia, to discuss development of the god-themed MOBA, *Smite*. The Olympians were players halfway through their year-long terms as council members, each there to represent player interests across *Smite*'s multiple modes, platforms, and community niches.

The idea for using player councils originated with *Smite*'s sibling game *Paladins* in the run-up to the 2018 Hi-Rez Expo event. The *Paladins* team were focusing on quality and community, explains brand director Alex Cantatore. Their thinking was, "It would be great to actually just get [the community] involved in the decision-making process and give them early looks at the things that we're doing and find out if this is something we should be doing."

There had also been a slight shift in the workforce. "We have some people on staff here that had worked for CCP for a long time," says Hi-Rez CEO Stew Chisam. "They had some insights into how valuable [player councils] could be." CCP's space MMORPG *EVE Online* has an elected Council of Stellar Management (CSM). The CSM works with devs to improve *EVE* which is what Chisam is referencing, although in *EVE*'s specific case the CSM is also an occasional inflection point in massive digital interstellar warfare.

An example of community feedback in action at Hi-Rez is the *Paladins* champion Raum, a demon with a minigun. The team only started working on Raum because they were taking a break from a champion the player council hadn't warmed to at all. "We were excited about this champion concept," says Cantatore. "We were like, 'Man, this is going to be our best champion ever!'" After weeks of internal hype the dev team put the champion onscreen to show the player council and were met with... nothing. They didn't even hate it. "It was the worst, like, no reaction, you know?" says Cantatore.

So the team stepped back from that character for a while and Raum was the result. Meanwhile, the unannounced champion has gone through multiple iterations and feedback cycles. "We showed them the most recent concept and they were ... blown away. But it took lots of back and forth," says Cantatore. And even with the concept now in place there will be plenty more discussion as the council decides how she actually plays.

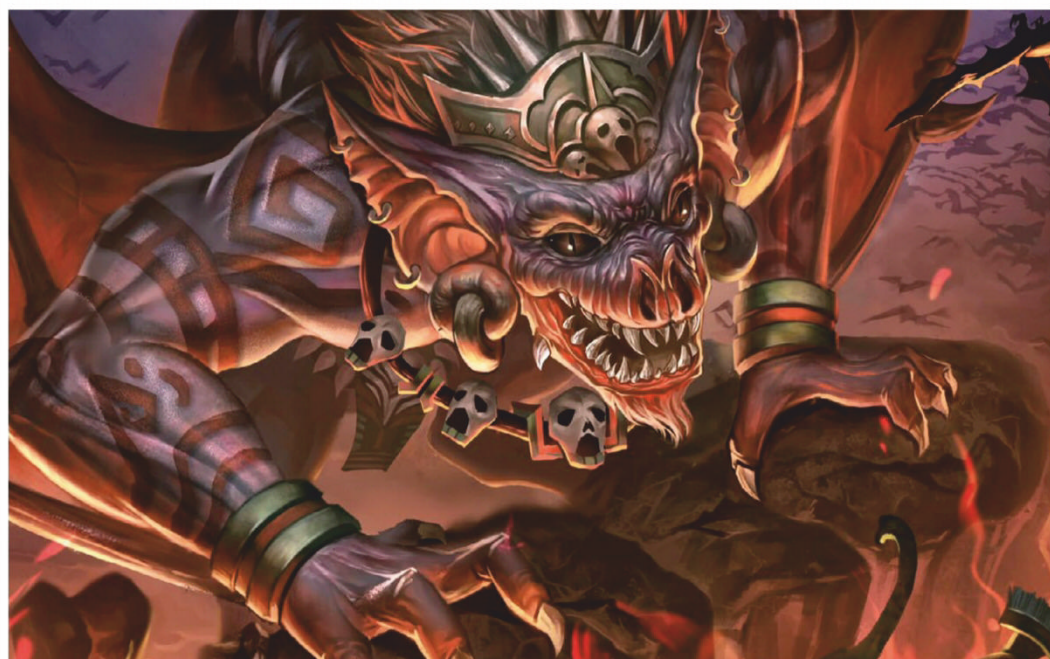
SMITE AND MAGIC

For *Smite* there isn't a big champion-level point of impact from the player council. Instead the developers point to masses of smaller effects threaded through the whole process. AJ Walker, *Smite*'s lead game designer, lists bug reports, feedback collection, detailed information on game



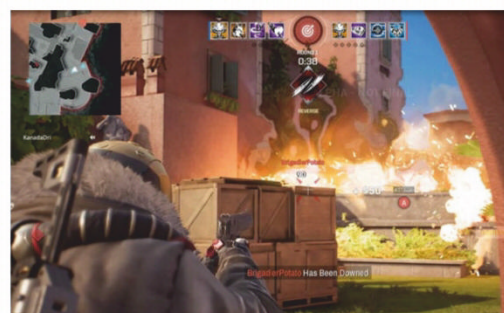
Useful feedback

With no shortage of ways players can voice their opinions about game development, being able to separate what's insightful or helpful from the digital noise is vital. Some devs prioritise what early adopters have to say via Kickstarter and Early Access programs, and there's the cocktail of subreddits, player data, customer complaints and more. Community ambassadors are yet another facet of that complex puzzle.



FAR LEFT: Council feedback helped buff Camazotz, *Smite's* (underperforming) Deadly God Of Bats.

LEFT TOP: A chilly council response to another champ led to the creation of Raum.



LEFT BOTTOM: *Rogue Company* will also follow the player council format.

COMMUNITY MAGIC *How other games benefit from players getting involved with development*



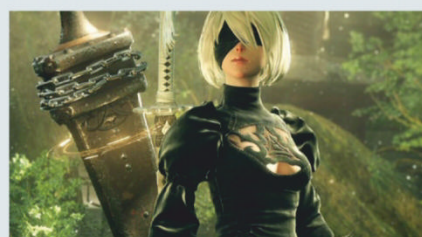
EVE ONLINE

The players who form the Council of Stellar Management assist and advise CCP on the game's development.



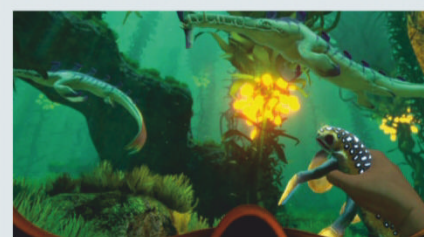
DOTA 2

Icefrog, the lead developer of *Dota 2*, is believed to contact pro players to get their opinions on game balance.



NIER: AUTOMATA

Players can also take development into their own hands – here a fan-made patch fixed issues with the PC port.



SUBNAUTICA

Unknown Worlds' Early Access success involved player access to the developer task board and more.

issues, player behaviour concerns and more. "They help us on all sorts of things," he says, "And we can invert this whole process so I can share information with them for them to spread out into their different communities."

Smite's executive producer Travis Brown says that the council is particularly good at flagging up little quality-of-life issues which can make a big difference. "We're focused on big picture items, going for the future, and they'll just be like, 'Why doesn't this [small thing] work?'" Brown adds that if the team is choosing whether to implement a new feature or work on one suggested by the Olympians, "we should be prioritising the Olympian ones because they have more of the pulse of the players. They are the players".

The councils have dedicated spots for representatives on each game platform as well as wildcard spaces for whoever gets the most

community votes. *Smite's* council is further subdivided, making sure there's one rep for the conquest modes and one for the other types of match on each platform.

"On the internet any game discussion forum is dominated by PC players," says Cantatore. "They're the ones at their keyboards on the internet all the time, and it's easier to stream if you're on a PC, or make YouTube videos." That can skew the feedback, so recruiting platform-specific player representatives means the dev teams can get console feedback and figure out how it relates to and differs from what's happening on PC. Something I'm pleased to see is that player councils seem

to be part of how the company is getting better at seeking and handling feedback. As a studio (or, more recently, a set of studios), Hi-Rez is known for putting games out relatively early in development. That's useful for gauging interest early and adjusting development, but it also means a game can feel like it's getting dragged in too many directions by the early glut of feedback.

Hi-Rez waited two years to let the public play its upcoming third-person shooter *Rogue Company*. The game isn't finished by a long shot, but the core experience feels stable in a way that other recent Hi-Rez projects haven't. I suspect *Rogue Company's* stability will make a

lot of feedback easier to parse. When a game has a clear identity in place, it's easier to tell if suggestions will help achieve that or conflict with it.

"We're a lot better at planning than we used to be," says Chisam of the

changes to game production. "I think our processes have gotten mature enough to be able to take much better advantage of that [player council] feedback and I think that the communities have gotten mature enough as well."

I ask *Rogue Company's* lead designer, Scott Lussier whether they'll also take advantage of player councils, and he gives an enthusiastic yes. "They're really, really good community managers," he says, "They're operating on their own behalf but they're keeping the best interests of Hi-Rez in mind, also they're going to be very truthful. So yeah, I can't imagine we would go a different way." ■

Philippa Warr

THE COUNCILS HAVE DEDICATED SPOTS FOR REPRESENTATIVES ON EACH GAME PLATFORM

RECOIL III GTX

15.6" Matte Full HD Screen
Intel® Core™ i7-9750H
8GB Corsair 2133MHz
6GB GeForce GTX 1660 Ti
1TB SEAGATE 7mm SATA
HDD (7,200)
Genuine Windows 10 Home

This spec from
£1,189.99



PULSAR ELITE

CORSAIR CARBIDE SPEC-DELTA RGB
Intel® Core™ i5-9400F
ASUS® PRIME Z390-P
8GB Corsair VENGEANCE 2400MHz
6GB GEFORCE GTX 1660
Genuine Windows 10 Home

This spec from
£849.99



DEFIANCE V 17 PRO

17.3" Matte Full HD 144Hz Screen
Intel® Core™ i7-9750H
16GB Corsair 2133MHz
8GB GeForce RTX 2070 Max-Q
1TB SEAGATE 7mm SATA
HDD (7,200)
Genuine Windows 10 Home

This spec from
£1,469.99



FUSION PRO S

PCS SR-628B
AMD Ryzen 7 2700X
Gigabyte B450 AORUS ELITE
16GB Corsair VENGEANCE 2400MHz
8GB GEFORCE RTX 2060 SUPER
Genuine Windows 10 Home

This spec from
£1,199.99



GET A FURTHER £15 OFF WITH
THIS EXCLUSIVE VOUCHER CODE:

PCG19

0333 011 7000



CUSTOM GAMING DESKTOPS & LAPTOPS

ORDER ONLINE NOW AT

WWW.PCSPECIALIST.CO.UK

PREVIEW



World of Warcraft: Shadowlands



NEED TO KNOW

RELEASE
2020DEVELOPER
Blizzard EntertainmentPUBLISHER
In-houseLINK
worldofwarcraft.comWORLD OF
WARCRAFT:
SHADOWLANDSWoW's game director reveals
what awaits us in the afterlife

Few places in Azeroth aren't covered in the boot prints of *World of Warcraft* players. We've been to every major continent, alternate magical dimensions and through dark portals to sundered worlds. Hell, we've even been to space. But this summer, Blizzard is taking us to a realm no living soul has been before: the afterlife.

Called the Shadowlands, these kingdoms of death are a typically well-oiled machine where dead souls are sorted and sent to different realms based upon their deeds in life – or it would be if some nefarious villain hadn't broken the cycle, forcing every new soul to be dumped straight into a hellish abyss. “The Shadowlands pose a threat to our existence, to life, and what life means,” game director Ion Hazzikostas tells me.

“That will lead us to have to venture across this barrier into the Shadowlands, but this is not the familiar *Warcraft* ecology of orcs and trolls and humans and dwarves. This is a fantastical journey into a side of Azeroth we've never seen before.”

When *Shadowlands* releases later this summer, however, it won't just be another expansion full of monsters to kill and gear to grind. It also brings some exciting new innovations to the 15-year-old MMO, like a roguelike dungeon that changes each time you enter, an enormous amount of customisation and player choice, and a reduced level cap that will make starting a new character a lot less daunting.

DEATH BECOMES US

You're right to be more than a little skeptical about *Shadowlands* if you spent a significant amount of time playing *World of Warcraft*'s current expansion, *Battle for Azeroth*. It's no secret that Blizzard

missed the mark on many of its core features, making for one of the most contentious two years of *World of Warcraft*'s entire life. But in talking with Hazzikostas, it's clear that the release of *Shadowlands* isn't Blizzard sweeping *Battle for Azeroth* under a dirty rug. Many of the expansion's ideas feel like a direct response to player feedback and Blizzard's own internal learning.

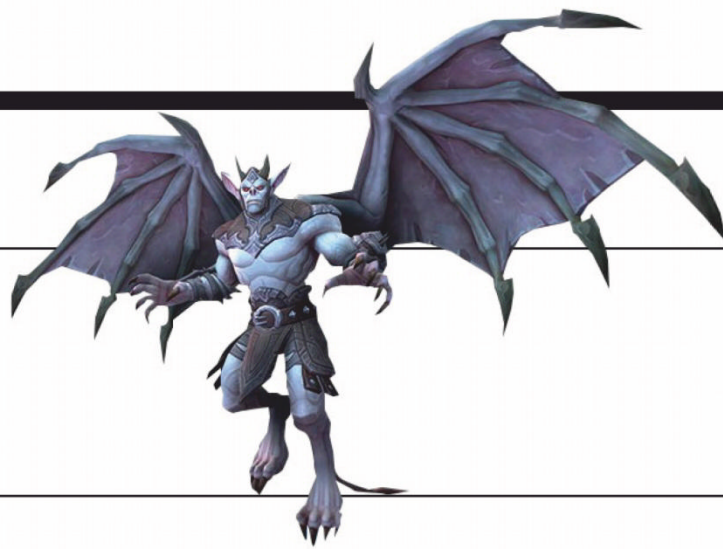
For example, both *Legion* and *Battle for Azeroth* let players choose which zones they wanted to level through. It was great that players had a choice and could take alternate routes when levelling other characters, but it also made telling a coherent overarching story a real challenge. *Shadowlands* is the best of both worlds: players' first time through will lead them from zone to zone in a set path, but once they've beaten the main story they're free to tackle zones in any order on their other characters. “We can tell a more structured story like we did back in *Warlords of Draenor*, where you are meeting new allies, experiencing betrayals along the way, and uncovering plots in a way that we simply weren't able to do in *Legion* or *Battle for Azeroth* when we didn't know what zone you're going to start in,” Hazzikostas says. “If you start in the zone that has the big betrayal in it, then it's not much of a betrayal.”

As players explore the Shadowlands, uncovering its mysteries and helping its denizens, it should feel a lot more like the *Warcraft* of old. Dangerous, high-level monsters will prowl just off the beaten path, forcing players to again be cautious of where they're exploring. “We've heard a lot of feedback and we agree that there's a risk of the journey through a new world feeling a bit flat when everything scales around with you as it must if we're going to let you pick any zone,” Hazzikostas explains. “We are excited to get back to a place where when you first arrive in Bastion, the outer reaches of the zone have some high-level enemies that are pretty tough for you.”

NEW
INFODANGEROUS, HIGH-LEVEL
MONSTERS WILL PROWL JUST
OFF THE BEATEN PATH

PREVIEW

World of Warcraft: Shadowlands



» That's not the only way feedback from *Battle for Azeroth* and *Legion* have shaped *Shadowlands*, though. Throughout the expansion, players will gather Anima to buff up their character in the same way that players hoarded Artifact Power in both *Legion* and *Battle for Azeroth*. But unlike Artifact Power, Anima isn't infinitely grindable, and players won't have to worry about feeling pressured to spend hours of each week maxing it out just to stay competitive with others. "That just leads to burnout," Hazzikostas says. "In order to get your core power progression, really we're probably asking like an hour a week – something like that. Obviously it depends on your activity level, but we really want to create a baseline low level of activity."

But if players aren't spending all their free time grinding for marginal increases in power, what will they be doing instead? Turns out, *Shadowlands* has some bold ideas for reshaping *Warcraft's* endgame.

INTO THE ABYSS

In addition to the usual raids, dungeons, and daily world quests that players are used to by now, *Shadowlands* is packing a big one-two punch between a new roguelike dungeon called Torghast, Tower of the Damned and a harrowing outdoor zone for max-level players, The Maw. Each iterate on experimental ideas from *Battle for Azeroth*, Hazzikostas tells me.

The halls of Torghast are what I'm most excited for. Once players reach max level, they'll explore this new type of dungeon looking for relics that can then be used to craft new Legendary items with powerful and unique abilities. Getting out alive will be challenging, though, because Torghast changes each time you enter it. Hazzikostas says that, like any good roguelike, each floor will algorithmically spawn different monsters and traps, and powers to help you survive them. During a run you'll gradually choose various temporary upgrades that'll augment your abilities, often triggering weird and unforeseen synergies.

"It gives us a chance to have a lot of fun doubling down on just, frankly, broken powers," Hazzikostas laughs. "Things that are transformative that we can't

necessarily do in the existing, established spaces like dungeons and raids. But if you can feel like you're breaking the game in the confines of a run in Torghast, that's a whole entire new type of gameplay that we've never really been able to explore."

Compared to the confines of Torghast, The Maw might seem like a breath of fresh air if it weren't swimming with the *Shadowlands'* scariest monsters. Previous expansions have included a zone exclusive to max-level players, but Hazzikostas says The Maw will feel significantly different. "This is the heart of the *Shadowlands* that none but you have ever been able to escape from," he warns. "This is not a place where you're going to go chill out for a while, pick some herbs and go do some quests. But we still want this to be a place for all players."

Hazzikostas compares The Maw to how zones were designed in *World of Warcraft Classic*, where players weren't the super-powered gods they are now and had to exercise caution while fighting and exploring. If Blizzard pulls it off, it should add some much-needed tension to *Warcraft's* open-world questing.

WELCOME TO HELL

Torghast and The Maw are just a few of *Shadowlands'* promising new features, though. Each new zone has its own Covenant that players can choose to join, unlocking unique abilities and armour sets. And even though players will spend most of their time exploring this new spirit realm, those not currently at max level will see some radical new changes to Azeroth.

For the first time ever, *World of Warcraft's* level cap is being reduced back to its original limit of 60. Instead of new abilities being slowly drip-fed over 120 levels, the level squish will ensure each new level is satisfying and exciting. It will also make it easier to experience old expansions in their entirety. Once a character reaches level 10, players will choose which expansion they'll want to experience, taking them all the way to level 50 where *Shadowlands* begins. It sounds like an exciting new way to experience parts of Azeroth that often go neglected these days, but at a pace Hazzikostas estimates is 60 per cent faster than the current levelling process.

And while *Battle for Azeroth's* unique ideas didn't always stick, *Shadowlands* is improving many of them in ways that make me excited about spending the next two years in *Warcraft's* version of hell.

Steven Messner



Maldraxxus is where Slayer fans go when they die.

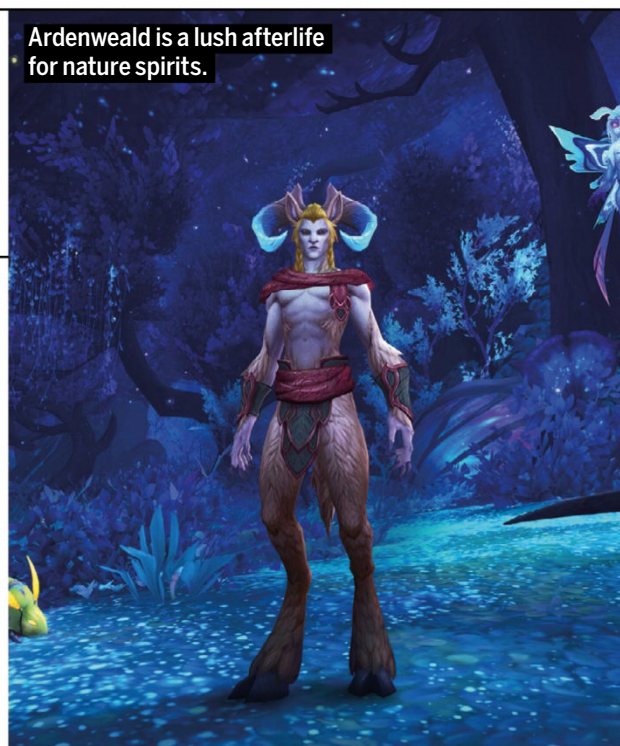


Bastion is a kind of paradise for virtuous souls.



WORLD OF WARCRAFT'S LEVEL CAP IS BEING REDUCED BACK TO ITS ORIGINAL LIMIT OF 60

World of Warcraft: Shadowlands



PREVIEW

Resident Evil 3



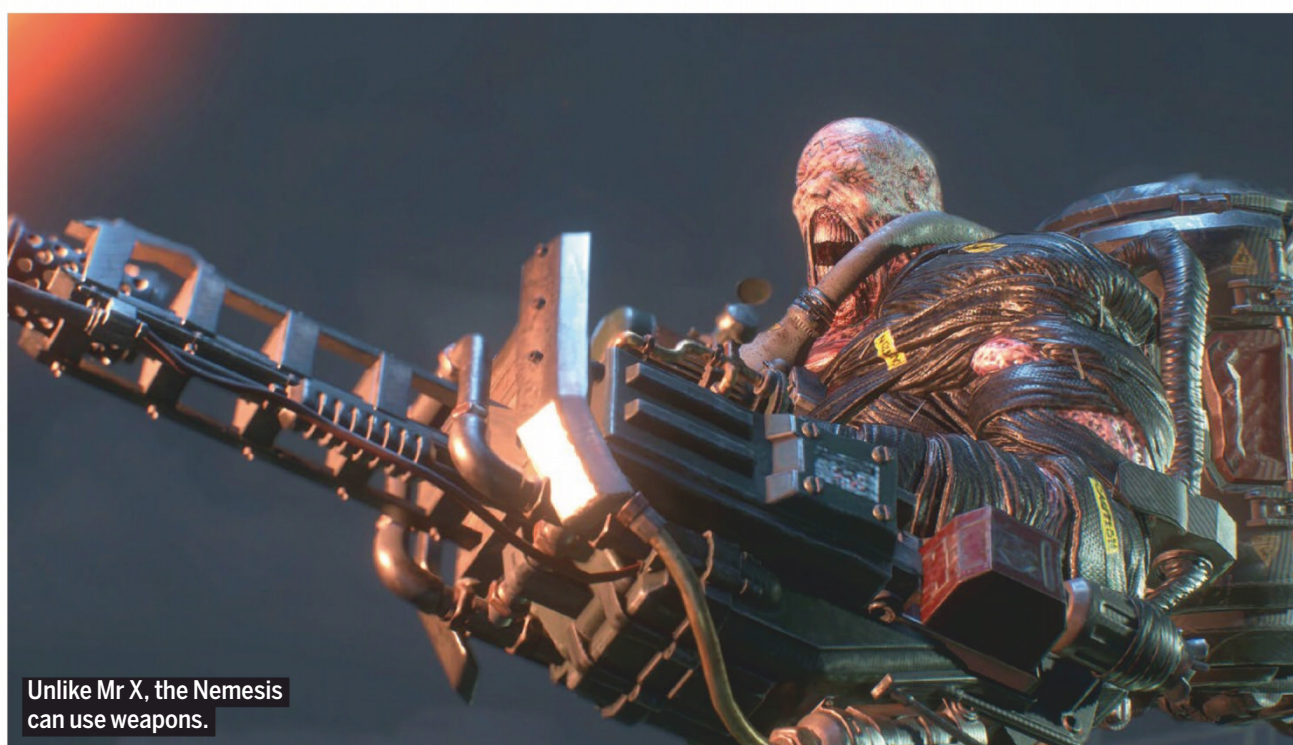
You're gonna need a bigger gun.



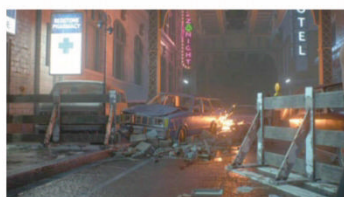
Turns out giant mutant fleas are super gross.



These guys lurk in the sewers and they're horrible.



Unlike Mr X, the Nemesis can use weapons.



NEED TO KNOW

RELEASE
April 3

DEVELOPER
Capcom

PUBLISHER
In-house

LINK
residentevil.com/re3

RESIDENT EVIL 3

Jill Valentine returns. And so does her relentless stalker

The breakout star of the *Resi 2* remake was undoubtedly Mr X, the massive fedora-wearing mutant who relentlessly hunted Leon and Claire. But imagine if Mr X could jump, use weapons and choke you with slimy tentacles. You've just imagined *Resident Evil 3*'s Nemesis, whose meme-spawning predecessor seems a minor inconvenience in comparison.

While the previous game was largely confined to the shadowy corridors of the Raccoon City Police Department, this remake takes the action to the streets. It's a compelling change of scenery, with dark, claustrophobic alleyways opening up into big, open areas lit by neon signs.

Set 24 hours before the events of *Resident Evil 2*, Jill Valentine is trapped in the city with the aforementioned Nemesis, a bio-weapon created to hunt down survivors of RPD special forces team STARS. The shift to an outdoor setting is a dramatic one, but through devious placement of crashed cars, fences, elaborately locked doors, and other obstacles, it still has the complex, labyrinthine feel that defines the series.

My demo begins on a street lined with abandoned shops, and I notice immediately that there are a lot more zombies in this remake. Capcom has widened some areas to suit the urban setting, but balanced this out by throwing a lot more undead at you.

I decide to evade them and find myself using the larger space to reposition the

zombies, luring them up one staircase so I can slip safely down another. There are still plenty of tight, narrow corridors, but these moments give the *RE3* remake a very different feel. A lot of the shops are locked, but later I find tools including a lock pick and a bolt cutter, and I'm able to return and loot them for weapons, ammo, and puzzle-solving items.

MR X FACTOR

Navigating the wreckage of the city is my main concern as I attempt to restore power to the city's subway network. As well as those ever-present zombies, which have a terrible knack for lunging out of the shadows when I least expect it, I find myself blocked by a raging inferno, which requires a fire hose to extinguish.

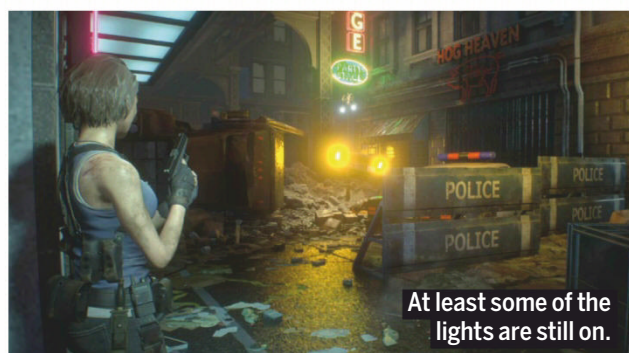
Later I have to activate a series of breakers in a basement, which is made difficult by the presence of giant, mutant fleas. If they get too close they infect Jill with a parasite that slowly saps her health, and the only way to get rid of them is to munch on a green herb. Eat one and Jill theatrically pukes the parasite up.

I manage to get the subway back up and running, but because this is *Resident Evil*, the relief is short-lived. As I run back to grab a train to the next area of the city, the Nemesis crashes through a wall and charges towards me. I run past him, as I've done with the Tyrant in *Resi 2* so many times, but he catches up with me and immediately kills me.

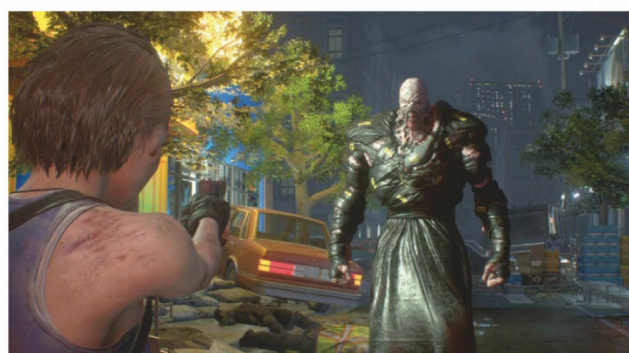
Next time I lob a frag grenade and he's stunned long enough to let me gain some distance. He also drops a supply case containing a stock for my pistol – a reward that also seems to be a clue from the developer you have to be more aggressive in dealing with this guy. I can shoot objects in the environment to slow the Nemesis down as well, including explosive barrels and generators that zap him with arcs of crackling electricity.

After a brief boss battle, in which the Nemesis comes at me with a flamethrower, I finally escape from him and the demo ends. *Resident Evil 3* doesn't feel as excitingly fresh as the *Resi 2* remake did when it was first released, but relocating the action to Raccoon City does enough to set it apart.

Andy Kelly



At least some of the lights are still on.

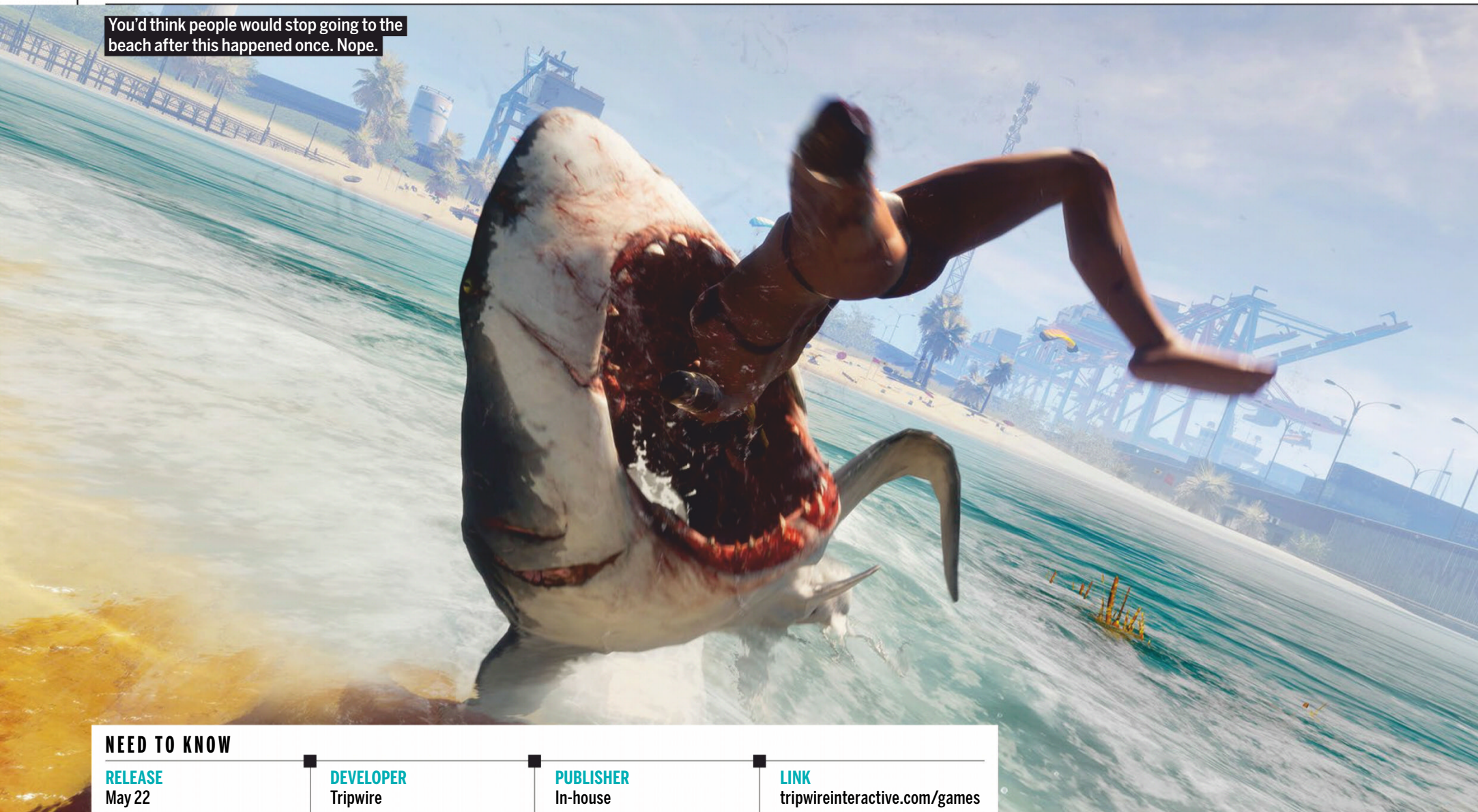


I FIND MYSELF BLOCKED BY AN INFERNO, WHICH REQUIRES A FIRE HOSE TO EXTINGUISH

PREVIEW

Maneater

You'd think people would stop going to the beach after this happened once. Nope.



NEED TO KNOW

RELEASE
May 22

DEVELOPER
Tripwire

PUBLISHER
In-house

LINK
tripwireinteractive.com/games

MANEATER

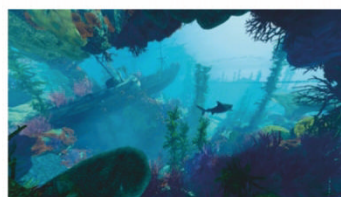
A shark RPG that aims at more than just novelty

If it were easy to make games about being a shark, I'd be able to name more than just *Jaws Unleashed* – a 2006 game Tripwire played as it figured out how to build its shark-based RPG. With the caveat that there isn't much competition, *Maneater* may be the best shark action yet.

PLAYED IT

Fish don't talk, which makes storytelling difficult. To solve that, *Maneater* is framed as a reality show akin to *Deadliest Catch*, with actor Chris Parnell narrating your movements in the water, explaining your shark nature as you swim around devouring hapless beach-goers.

You have a human nemesis, a shark hunter who's the star of this reality show, as well as underwater enemies, apex predators who've muscled into your gulf territory. It's time to restore some natural balance. Gobbling up fish is fun, but I felt the greatest catharsis from terrorising the humans. I only wish they freaked out more



when I lunged onto their boats, or even when my fin appeared on the surface – they accepted their fates a little too easily.

Other issues make a shark RPG tricky to design. How does a shark level up, for instance? In *Maneater*, you literally grow, beginning as a nimble pup and ending the game as a behemoth capable of tearing apart fishing boats. And if it wasn't clear that *Maneater* isn't really a nature documentary, you can also upgrade your body, forming a bony exoskeleton to bash ships with, bioelectric talents, or some stealthy, vampiric traits.

BITING POINT

The controls take some getting used to, and it's optimised for a controller right now, though it will support keyboard and

mouse. Essentially, Tripwire has to design a melee dogfighting game. You move through three-dimensional space – at least until you breach the surface and start snapping at humans – and attack with bites and tail whips.

A degree of automatic locking-on makes it manageable. Aim nearish a fish, hit the right trigger, and you'll lunge into a bite. Tapping the right trigger chomps and swallows, and you can also wiggle the right stick to thrash your prey around and pacify it first. Better, though, is going full Looney Tunes and smacking your catch with your tail to fire it like a projectile.

The quality of the tougher fights with apex predators and the coastguard – who appear as part of an armada that responds to your *GTA*-like infamy level – will determine if all the chomping and evolving is worth it, and Tripwire is confident that it's more than a novelty shark sim. But just exploring *Maneater*'s seven regions while Chris Parnell tosses out gags seems like a good time, too, especially if you enjoy marinescapes as much as I do.

Tyler Wilde

I FELT THE GREATEST CATHARSIS FROM TERRORISING THE HUMANS

TIME TO STEP OFF THAT TREADMILL

With so many demands from work, home and family, there never seem to be enough hours in the day for you. Why not press pause once in a while, curl up with your favourite magazine and put a little oasis of 'you' in your day.



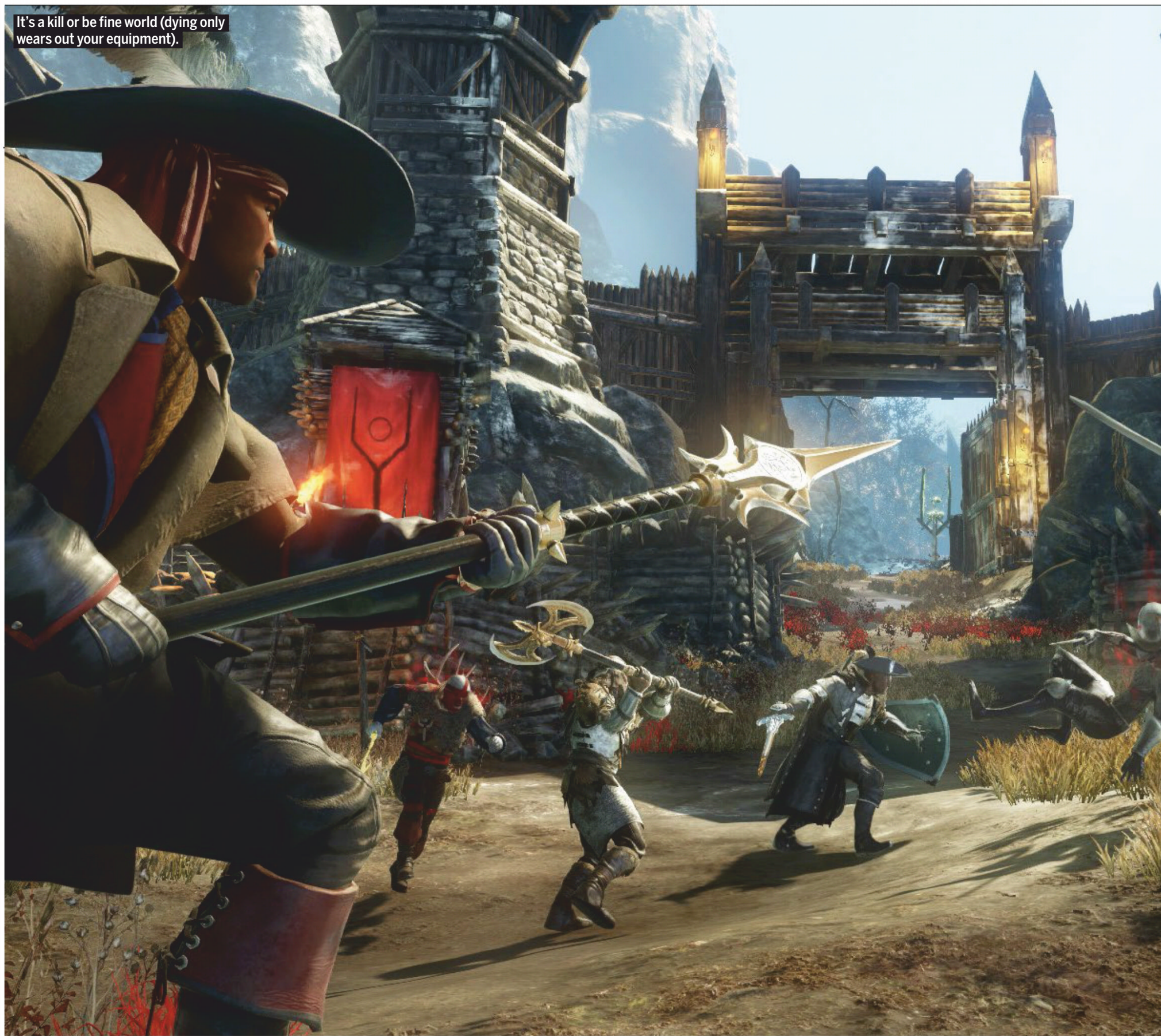
PRESS PAUSE
ENJOY A MAGAZINE MOMENT

To find out more about Press Pause, visit;
pauseyourday.co.uk

PREVIEW

New World

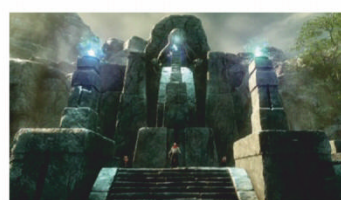
It's a kill or be fine world (dying only wears out your equipment).



The corrupted have been consumed by evil magic.

If you join another player in a fight, you'll both get full XP for the kill.





NEED TO KNOW

RELEASE
May

DEVELOPER
Amazon Game Studios

PUBLISHER
In-house

LINK
newworld.com

NEW WORLD

An MMO worth attention for its combat and PvP wars

Earlier versions of Amazon's MMO nagged players with thirst and hunger, but now a sip of water just replenishes a little health. Not much is precious to this team: if it isn't working it gets cut, or revised. The survival systems didn't make it, but you can still camp and cook up buffs.

New World's action combat system is one of the few exceptions. Amazon is committed to making you physically connect swords and arrows with your targets – no clicking once and watching 'X hits Y' scroll by in the chat window.

It's impressive that hit-detection works as well as it seems to in 100-player battles. A few times an arrow or bullet whizzed by me because the shot threaded a gap in whatever animation I was in the middle of. If one of my shots failed to connect, I had to assume the same thing happened, even if it appeared to hit its mark from my far-away perch on a fort's battlements. (And I didn't expect to hit much at that range, given that my arrows had to arc perfectly into squirrely players.)

In melee range, I dodge-rolled around, blocked, chained simple light and heavy combos, and threw out special moves which have long cooldowns. It's not as complex or fun as *Mordhau*, with its first-person view, feints and parries, but it requires a smattering of the same skills. Even though there are stats and levels and equipment tiers, one tester could apparently walk around naked – in the

game, not the office – killing anyone who challenged him purely through skill.

How a 100-player PvP battle comes about takes some explaining. The short of it is that players can form companies and take over territories on *New World's* island. If another company thinks they ought to be in charge, they can declare war, and a battle will take place at a real-world time set by the defenders. Each company can recruit up to 50 players to fight in the battle – they don't all have to be company members – and then the siege commences.

Why would you fight for a company you're not a member of? Maybe you've got nothing to lose and it would be fun. But maybe one of the companies promises lower taxes in the territory, or public projects like improved crafting stations, and you already bought a house in the local settlement and don't feel like moving.

WORLD WARRIOR

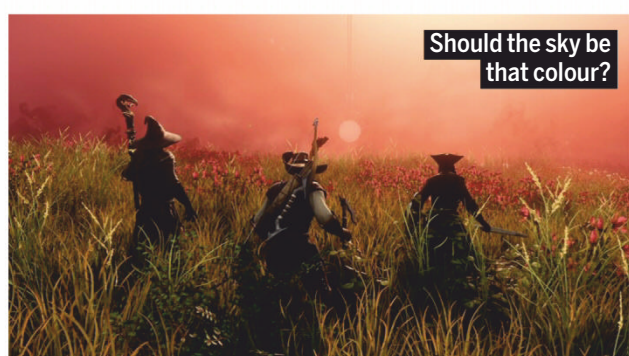
If it sounds awfully complex, *New World* isn't throwing out MMO conventions. After washing up on the island of Aeternum, an NPC ran me through the standard MMO rites: kill some ghouls to prove I can fight, butcher the local wildlife to pick up the basics of crafting, learn how to loot a chest. It's a yawn, but teaches what it needs to teach. You can focus on fighting AI enemies – there's one big boss battle ready for launch, and hordes of AI enemies can invade forts, too – and you don't have to take part in politics or PvP if you don't want to.

'Restraint' seems to be the key word here. *New World's* territory capture is interesting, but it isn't promising revolutionary player agency or ditching theme park attractions. You can't plop houses anywhere or design your own fort, because according to the devs those features didn't make it more fun in testing – mostly, they're keeping it simple.

'Let's not go too wild' doesn't lend itself to catchy marketing slogans, but 'there's a new MMO on Steam, it's £35, the interface is intuitive, and you won't die of thirst after ten minutes' might be the right hook for the times. Now let's see if Amazon's cloud infrastructure can be used to launch an MMO without day one connection issues – that would be a feat.

Tyler Wilde

PLAYED IT



Should the sky be that colour?

PLAYERS CAN FORM COMPANIES AND TAKE OVER TERRITORIES ON THE ISLAND

Chivalry 2

I did not know you could do this.



NEED TO KNOW

RELEASE
2020

DEVELOPER
Torn Banner Studios

PUBLISHER
Tripwire

LINK
chivalry2.com

CHIVALRY 2

This medieval warfare sequel comes out swinging

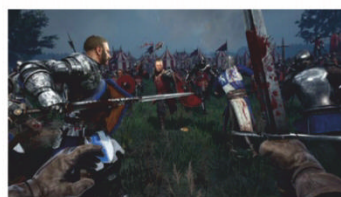
There are many ways to swing a sword in *Chivalry 2*: a basic left mouse button swipe, alternate swings bound to side buttons, jabs and overhead strikes thrown with the mouse wheel, and a special attack bound to Q. There's also a 'yell' key. For those moments when you need to yell.

PLAYED IT



I didn't want my time with *Chivalry 2* to end. It was fun even as a sloppy newcomer to the medieval combat genre, but what got me excited was the sense that a person could get really, really good at swinging one of these swords around – that it's grounded in physical techniques.

Like its 2012 predecessor, and popular newcomer *Mordhau*, *Chivalry 2* aims at delivering the full medieval battle experience. It's about moshing with steel, swinging and stabbing and blocking as arrows and limbs and heads streak by. There's a map in which attackers push battering rams up to castle gates before



breaking through, clashes on bridges, longbows and crossbows, and horses.

I didn't get to play those 64-player objective-based maps, just smaller team deathmatch rounds. We were all new to it, so it was mostly a mess of bloody accidents and team kills, but finesse definitely isn't impossible.

GET MEDIEVAL

You can duck under swings – bobbing like a boxer by hitting crouch and a directional key – block, dodge, and counter. To be any good you need to gauge distances accurately and throw deliberate strikes at varied speeds, using the mouse to twist into the arm movement. It's possible to feint, smoothly slipping from a forehand strike to a backhand or a jab. There's

always a way to get out of a bad situation and put your opponent off guard.

The differences between *Chivalry 2* and *Mordhau* are subtle, but you'll feel them if you play one right after the other. *Chivalry 2* doesn't feel as twitchy. To parry in *Mordhau*, you tap the right mouse button just before your opponent's swing connects. In *Chivalry 2*, you hold down the right mouse button to block, but your opponent will have the advantage after a blocked strike unless you can slip in a jab, throw a counter, duck, or reorient. Skill in one game will transfer to the other, but they're in no danger of being identical.

There's more to *Chivalry 2* than swordplay complexity: subclasses add new weapons, character customisation has been expanded, and if I'd had a chance to try mounted combat I might've focused on learning how to deliver precision horse kicks.

There's no set release date yet, and I suspect there's a good amount of tuning to do in a game with so many ways to kill and to die. But just a brief demo at this early stage left me with high expectations.

Tyler Wilde

THE DIFFERENCES BETWEEN CHIVALRY 2 AND MORDHAU ARE SUBTLE



1,500
FOOTBALL PITCHES
EVERY DAY!

Did you know that European forests, which provide wood for making paper and many other products, have grown by 44,000km² over the past 10 years? That's more than 1,500 football pitches every day![†]

Love magazines? You'll love them even more knowing they're made from natural, renewable and recyclable wood



[†]UNFAO, Global Forest Resources Assessment 2005-2015.

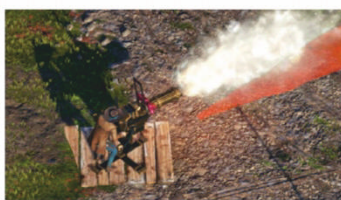
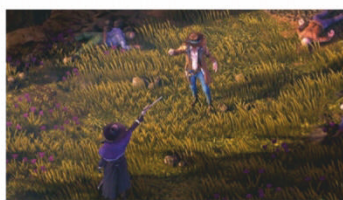
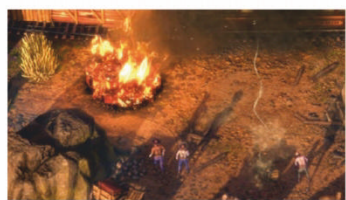
Two Sides is a global initiative promoting the responsible use of print and paper which, when sourced from certified or sustainably managed forests, is a uniquely powerful and natural communications medium.

There are some great reasons to [#LovePaper](#)
Discover them now,
twosides.info



PREVIEW

Desperados 3



NEED TO KNOW

RELEASE
2020

DEVELOPER
Mimimi Games

PUBLISHER
THQ Nordic

LINK
desperadosgame.com

DESPERADOS 3

Once upon a (real) time
in the West...

At times these days it seems like every weird niche PC game I loved as a child now has a modern remake or beloved spiritual successor. But even so, I must admit I never expected *Desperados*, the real-time tactics cowboy game, to make a comeback nearly two decades after the original release.

In fairness, I was warned. Back in 2017 Mimimi games resurrected real-time tactics with *Shadow Tactics: Blades of the Shogun*. Now they're back with a sequel to one of the two games that created the genre in the first place. (The other being Pyro Studios' *Commandos* games).

I'll forgive you for having no idea what real-time tactics is, given how small the genre is; think of it as a real-time *Invisible Inc.* Despite the western setting, the emphasis is heavily on avoiding loud guns and sticking to stealth, micro-managing your handful of heroes past dozens of guards.

Technically you always have the option to go loud, but this usually ends in disaster. Occasionally you are forced to fight, but even then you'll usually have some help in the form of (for example) a nearby barrel of dynamite, to help even the odds.

Each character has their own unique set of abilities, and levels will often remix which ones are available to you, forcing you to adapt and improvise.

Cooper, the protagonist, has an immensely useful throwing knife and distracting coin toss, plus two revolvers in case things go bad. Two other characters

return from the original games: professional killer/healer Doc McCoy, and conwoman Kate O'Hara. Kate can disguise herself and walk freely among guards, distracting them with conversation, while Doc packs a long range scoped handgun and some clever tricks with knockout gas.

The only odd one out of the group is Isabelle, who uses a blowpipe that can mind control enemies or 'connect' two guards so that whatever happens to one happens to another. It's an oddly magical set of abilities given the rest of the cowboy setting, and although they are very fun to use, I was a little bit uncomfortable with the black lady being defined by possessing quasi-voodoo powers.

WEST WORLD

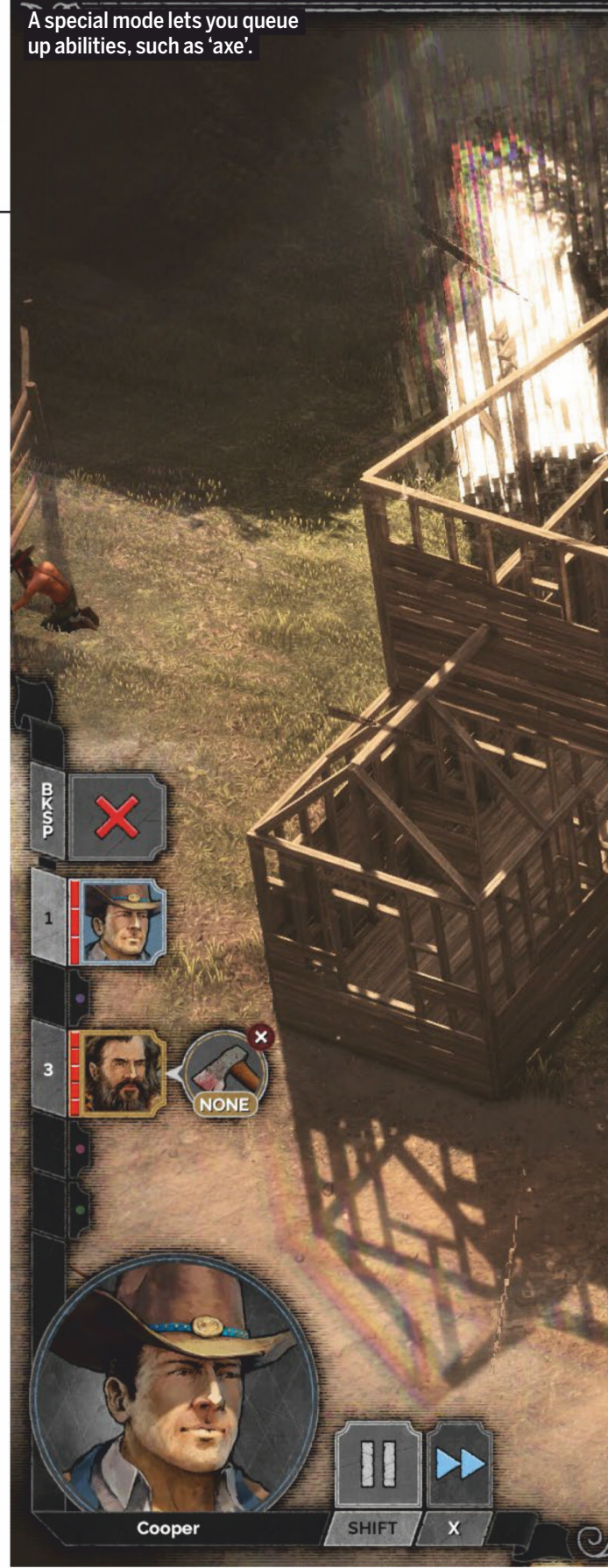
What shines here is the level design. *Desperados* loves to show you a vast journey, only to break it down into bite-size chunks. Fool these three guards to get through this gate here, trick this sniper and avoid the guard dog here, until you realise you've slowly but steadily covered the whole thing. Often you'll encounter a group of guards all looking at each other, a seemingly impossible task, yet with enough trial and error you'll figure out the exact sequence that lets Kate distract a guard just as

Cooper stabs another in the neck, while the third is playing with Isabelle's cat. Yes you'll be quicksaving a lot here, so much so that a reminder will pop up on screen if you go over a minute without hitting F5.

I only got a handful of levels to try out, but each one had a clever concept with its own interesting challenge. One level takes place alongside a train stopped by bandits, starting at the back and sneaking your way along a seemingly endless line of carriages to the front to finally deal with the obstacle. Another takes place in a small town occupied by a brutal railroad company, letting the players freely wander the open streets before ducking into a guarded area to stage a series of accidents against the company men, spiking drinks and angering prize bulls, in a decidedly *Hitman*-esque fashion. Don't be fooled by the whiskey-soaked exterior – *Desperados* is an intricate puzzle box solved with knives and bullets.

Tom Hatfield

A special mode lets you queue up abilities, such as 'axe'.



**THE EMPHASIS IS HEAVILY ON
AVOIDING LOUD GUNS AND
STICKING TO STEALTH**



EARLY ACCESS PREVIEW

Cook Serve Delicious 3

HS 1 | F1

HS 2 | F2

HS 3 | F3

HS 4 | F4

HS 5 | F5

06 Butter

Today's MENU | F9



Chicken

Ginger Pst.

Red Chili

Salt

Turmeric Pdr.

Yogurt

Tandoori Chk.

After placing the ingredients, **Toss and Mix.**

Cook ENTER 002046

Complicated foods are a good way to practice touch-typing.

Today's MENU

Food Type: All

Special: None

Recipe: All

Sort: All

Sort: Portion & Z

ADVANCED STATS

View Settings / Auto Save: Off

Reset Filters

The huge library of food has everything from fried junk to international

Ayam Goreng

Baklava

Bananas Foster

Beignets

Bikangna

Bismillah

Bird Eggs

Bratki Sandwich

Brownies

Burrito Chow

Bufo Kimchi

Chippotts

C.Strips

Churros

Cin.Buns



CLEVER GUARDIAN

Delicious!

WHISK DRIVER

Delicious!



Your two cheery robot sidekicks add bags of personality.



Press Esc/Start to S

30 PC GAMER APRIL 2020



NEED TO KNOW

EXPECT TO PAY
£11.40

DEVELOPER
Vertigo Gaming Inc

PUBLISHER
In-house

LINK
cookserve-delicious.com/yum

COOK SERVE DELICIOUS 3

For the sake of my heart, I should've just gotten a takeaway

In games, I've fought wars, escaped certain death and saved universes – but I don't think I've ever been as stressed out as I am assembling a burger in *Cook Serve Delicious 3*. This cooking sim sequel puts the focus squarely on high-speed food preparation under pressure. A lot of pressure.

In a near-future America torn apart by war, your goal is to... run a successful food truck. As you travel across the country, you have to set your menu and then (rapidly) get everything ready for your customers, tapping letters on your keyboard to correctly cook each dish. Different levels have different restrictions, forcing you to change up your offering by only allowing certain types of food, or requiring a minimum number of points (each dish being scored according to how complex it is to make).

Compared to the previous games, the action has been streamlined. You no longer have to do chores like washing the dishes, for example, and instead of serving orders one by one, you can hit a key to send out all your ready dishes automatically. It's a shearing away of distractions that allows you to concentrate on cooking and cooking alone.

At first, the game feels easier than its predecessors. The action's even broken up into periods of travel and stopping points where customers arrive, giving you hassle-free time to prepare meals in advance and get ahead of the rush. But it

quickly becomes clear that these little mercies are all the excuse the developer needs to crank up the heat.

KITCHEN NIGHTMARE

Orders come thick and fast, and the increasingly complex foods you're forced to offer require ever more concentration to get right in a hurry. While you can pre-prepare foods, there are only limited holding stations to keep them in – as in a great strategy game, you're constantly making tough choices, even if here they're between chicken nuggets and battered cod. Keeping up with which stations are running out and what there's still demand for, and setting up new mid-rush batch cooks on top of keeping up with the grumpy impatience of waiting customers, is as demanding as making Christmas dinner for Gordon Ramsay.

Whether it's actually *fun* or not will depend on your disposition. The resulting loop generates a kind of genuine stress that I can imagine will leave some tearing their hair out. And while the 'chill mode' difficulty does offer a more relaxed alternative, its restriction that you can only achieve silver medals while using it will for some feel like training wheels rather than the full experience.

But if you're anything like me, you'll thrive on the rush of the game's sweat-inducing default difficulty. Great cooking sims aren't about cooking, they're about performing under pressure, and by that metric the *Cook Serve Delicious* series is a cut above. Even in this Early Access release, the ebb and flow is perfectly paced, never fully letting up but allowing enough quiet moments to make the sprints all the more exhilarating when they come. At the end of a busy shift, as you rise out of your culinary fugue state, there's a palpable sense of satisfaction.

There's loads still to be added over the course of *CSD 3*'s journey through Early Access – the story is currently quite thin, progression a little basic, and while there's a good chunk of levels already, there's room for a lot more to come. But even as it is now it doesn't feel half-baked (sorry). The action is intense, there's a huge library of food from all over the world to make, and the only thing higher than the skill ceiling is my blood pressure.

Robin Valentine

PLAYED IT



Some dishes look delicious, others oddly revolting.



AS IN A GREAT STRATEGY GAME, YOU'RE CONSTANTLY MAKING TOUGH CHOICES

GET THE PARTY STARTED

Our first look at **BALDUR'S GATE III**'s opening act.

By Fraser Brown

Jesus Christ," mutters Larian CEO Swen Vincke as another arrow hits his unconscious wizard.

We've barely started our journey to Baldur's Gate and we're close to a second party wipe. Vincke gets creative. He takes off his boot and throws it at a bandit, dealing a very small amount of damage. Five minutes later, unrelated to his

missing footwear, he slips on some stairs and dies.

Baldur's Gate III promises an epic yarn full of cosmic invaders, trap-filled dungeons and more characters with a mysterious past than an Agatha Christie mystery. And just like its tabletop progenitor, a few unlucky rolls and some interesting decisions can transform it into a brilliant comedy of errors.





Baldur's Gate III

» Details were slim last time we spoke to Larian about its next big RPG, but this time the developer has opened the gate – though lamentably not to the point where I've been able to take it for a spin myself. The illithids, grotesque alien tyrants more commonly known as mind flayers, have rediscovered the secret of flying nautiloids, their weird crustacean ships, and have decided to invade the Forgotten Realms. They've abducted lots of people and stuck parasitic tadpoles in their heads, but before the show can really get started another alien race appears, the githyanki, on top of red dragons no less, and blows them out of the sky.

This is good news, as it turns out. As one of the unfortunate abductees, you're now free. Unfortunately, you still have a parasite in your head. It's

not a great thing to have stuck inside your noggin, as it's how mind flayers procreate.

"So I have a central problem," Vincke says. "I need to get rid of this tadpole or I'm going to become a mind flayer. So I'm looking for somebody that can help me with that, and that too turns out to be quite a problem, but I can go in many directions."

ORIGIN STORY

Between the extremely flashy cinematics, you'll make your character. Here you've got to decide what race you are and what your background is, and then pick a class. All custom characters hail from *Baldur's Gate*, but you might be a dwarven noble or a crooked drow. Chances are you'll make an

BELOW: I failed my history roll, so all I know is that they're statues.



origin character. Yes, *Divinity: Original Sin II*'s origin system is returning, letting you pick named characters with more elaborate backstories, special hooks, and unique dialogue options. Vincke chooses Astarion, a vampire spawn who now finds himself free from his master and able to walk in the light – a 'gift' from the tadpole. This time, they're also locked into a class.

"The stories are very much tied to class at times," says senior writer Adam Smith. "Class is such a part of identity in D&D, in a way that it wasn't in *DOS II*." But those initial decisions will eventually be overshadowed by the choices you make as you play. "A rogue is always going to be able to do certain things that other people can't do, and an elf is going to be reacted to by some



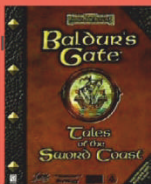
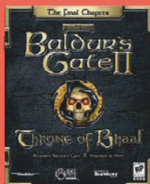
CONFLICT IN BALDUR'S GATE III STEMS FROM CONVERSATIONS JUST AS MUCH AS COMBAT

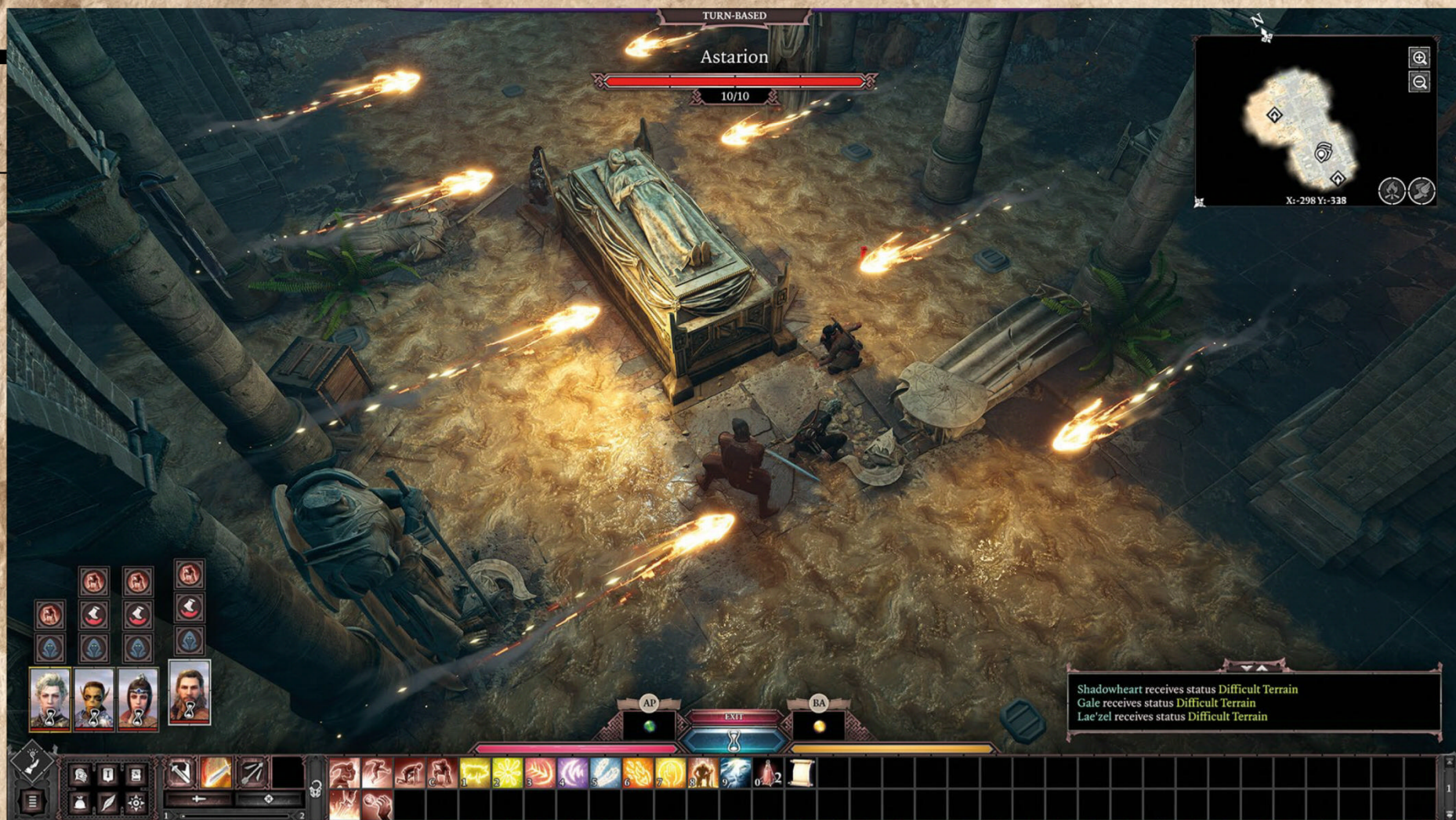


characters in a certain way. There will always be things that are specific to you because of the person you are, but the really interesting things are the things that are specific to you because of what you did. And then what gets even more interesting is how your companions remember the things that you did, and the way that you treated them and other people. And that becomes very complicated."

At camp, Vincke starts feeding on one of his companions. He's made a few friends, including one of the aforementioned githyanki, Lae'zel, all of whom can also be chosen as an origin character at the start of the

GATED COMMUNITY A timeline of Baldur's Gate games and expansions

									
1998 Baldur's Gate	1999 Baldur's Gate: Tales of the Sword Coast	2000 Baldur's Gate II: Shadows of Amn	2001 Baldur's Gate II: Throne of Bhaal	2001 Baldur's Gate: Dark Alliance	2004 Baldur's Gate: Dark Alliance II	2012 Baldur's Gate: Enhanced Edition	2013 Baldur's Gate II: Enhanced Edition	2016 Baldur's Gate: Siege of Dragonspear	TBD Baldur's Gate III



game. They're as complex as the player character, and in the case of the multiplayer mode they are all player characters, the heroes or villains of their own story – but for the time being the half-elf cleric known as Shadowheart is a light evening snack. As Vincke drinks, he's able to give into his craving, or he can pull back before sucking her dry, leading to a D20 being rolled at the centre of the screen. Luckily he passes the roll, as failure would have ended Shadowheart's story prematurely. Even with the roll, however, he's not out of the woods. The party could discover his secret, which seems pretty plausible given that tadpoles give their victims a psychic connection.

He likens the parasite to the Bhaalspawn legacy from the earlier games. It's a power that can be tapped, but it comes from a dangerous source. "Every single time that you use it, you give into it," Vincke warns. "And as you give into it, things start happening when you encounter other people with tadpoles, and you might not be so resistant. Eventually you'll find mind flayers, and if you use the tadpole, you might find that it's really hard."

TOP: Yep, Larian still really loves fire.

ABOVE: This place isn't welcoming, but it's handy for making fire arrows.

Conflict in *Baldur's Gate III* stems from conversations just as much as combat. The game is constantly making skill rolls and dialogue checks, pitting your arcane knowledge or religious know-how against the whims of the dice. During one chat, Vincke tries to pilfer a toe ring from a goblin, which he's able to do by gingerly kissing the gobbo's feet while employing some sleight of hand. Thanks to the close-up conversations and mo-capped animation, you can get a real good look at the makeout session, made even steamier by the detailed description. Vincke leaves the encounter with some new jewellery, while the goblin leaves with a smile.

TURN IT UP

Fights are bound to happen, of course, and unlike the earlier games, *Baldur's Gate III*'s brawls are all

turn-based. Exploration happens in real-time, and players or characters not in the brawl can continue to move normally, but when the swords are unsheathed things get tactical.

"I'm critical of real-time-with-pause because I think that it looks messy. It's like a miss, pause, give three orders, a miss, pause," says senior designer Edouard Imbert. "Also, I don't believe that sticking to the old system can expand to a greater audience. The thing with turn-based logic is that everybody understands it. It's my turn, it's your turn. And we have this experience with it – it worked for us with *Divinity: Original Sin*, it worked for us with *Divinity: Original Sin II*, and D&D is turn-based.

"Your characters are the tools you'll use to solve a puzzle, and the puzzle is more messy if everything is moving at the same time."





THERE ARE LOTS OF WAYS TO PREPARE FOR A BATTLE TO GIVE YOU AN ADVANTAGE

» To tackle one of the criticisms of the turn-based model – that it’s slow or laborious – Larian’s made some tweaks. Instead of characters going in order and getting an attack or an action, you can swap between them, using attacks and bonus actions to create a combo. Your party effectively moves simultaneously. If you love the turn-based combat so much you want it on even when you’re out of battle, however, you can force turn-based mode. This should make it easier to sneak, since you can more accurately manage your party’s movements.

All of the spells, abilities, and values are as they would be in a regular game of D&D, but just as important are all the open-ended roleplaying and combat opportunities. D&D is largely fuelled by imagination, and while *Baldur’s Gate III* has to impose a few more limits (sorry, no Wish spell), it still promises to be more interactive and experimental – and just as free to exploit and abuse – than the already liberating *Divinity: Original Sin II*.

In one fight, Vincke places some crates to give him more elevation and a combat advantage, and he could have alternatively used them to create a barricade. Before another, he sneaks around removing weapons from suspicious-looking skeletons, so when the trap is sprung, they have to use their fists. The plan is to eventually make the AI find a new weapon, comparing their values to find the most effective one, but they’d still have to spend precious time looking around. In a pinch, you can fling some of your inventory at your



foes, just like Vincke did with his boot. That means Larian needs to figure out how much damage, along with what kind of damage, all these objects do. Then there are the environmental factors, like elemental surface effects, loose boulders, or floors that can be destroyed, splitting the battle across multiple levels.

HIGH GROUND

Original Sin II had elevated areas, but the fights really took place on an invisible 2D grid. In *Baldur’s Gate III*, it’s fully 3D. This means you could have your ranger hanging out in the rafters, your rogue finding an alternate route below the ground, and your fighter rushing in with their massive sword swinging. There are

TOP: Calamari is back on the menu.

ABOVE: You probably don’t want to end up becoming a mind flayer. Bit... gross.

lots of ways to prepare for a battle to give you an advantage, but some of them will just be there to make you feel like a total badass.

“We don’t want all the fights to be complicated,” says Imbert. “Some of the fights have to be easy, like three goblins standing next to an explosive barrel. So we have this concept of popcorn fights, which are designed to make you feel good about yourself.”

With more complex level design comes a more flexible camera. The isometric view is helpful in combat, but as you’re wandering around, you might fancy zooming in and playing it more like a third-person affair, watching your character’s rear and, for the first time, admiring skyboxes and distant vistas.



STARSTRUCK *The D&D cameos we'd like to see*



ANYONE BUT DRIZZT
I like Drizzt. Everyone likes Drizzt. He's the best. That's a problem for all the adventurers who aren't legendary drow heroes. I don't want a much more impressive hero showing me up in front of my mates.



ELMINSTER
You can't have Volo and not include his best frenemy. Elminster is the archetypal wise wizard and would know a thing or two about mind flayers.

VOLO

The scholar will be making lots of appearances. He's an inquisitive bloke with a fantasist streak that inspires him to take a few liberties with the truth.



BOO (AND MINSC)
Nothing gives a boost like a miniature giant space hamster. Boo and Minsc are *Baldur's Gate* staples, so their absence would be greatly missed.

Aesthetically, it's not that far removed from *Original Sin II*, but character models, animation, magical effects, lighting – they've all clearly benefited from a bigger budget and more designers. And when you get up close, the difference between the two games becomes very apparent.

While mind flayers and tadpoles loom over this early part of *Baldur's Gate III*, there's also the threat of monsters and traditionally 'evil' races teaming up. "Suddenly, all of these forces, the goblins, the drow, gnolls and all kinds of different evil are gathering together and working together," says Smith.

"The Sword Coast is a dangerous place, but one of the things that makes it a place of opportunity rather than a place of incredible danger is the fact that these guys don't work together normally. Right now they are, and they have a new god, the Absolute. It's uniting them, and it's saying 'You are the future, the world is going to be yours.'"

OUT OF ALIGNMENT

There's likely a bit more to this coalition of villains than meets the eye, particularly because Wizards of the Coast asked Larian not to get too hung up on the traditional alignment system, which the tabletop game also leans on less these days. This matters for your character, too. You can be good, evil, lawful and chaotic, but that's purely up to you, not an arbitrary alignment you pick at character creation.

The slimy cosmic monsters, on the other hand, seem more like cut

TOP: Any origin character you don't play can be recruited as a companion.

ABOVE: Characters can jump, climb and hang out in the rafters.

BELOW: Meeting the tadpole for the first time is a bit harrowing.

and dry bastards. Meeting a mind flayer probably means you're about to become dinner or a host. Even dying, they're a menace. After the nautiloid crash, you can find the mind flayer who infected you, and just like the tadpole, he will try to make you give into him. If you have some unlucky rolls or give in, he'll suck your brain out of your skull, which won't bode well for the rest of the adventure.

Baldur's Gate itself hasn't yet had its big unveiling. The first map is massive, and from above you're only seeing the surface details, not all the caves, dungeons and hidden places. To end the demo, Vincke jumped to a later save, around ten hours in, but it was still on the same map. Depending

on the route the party takes, it could take anywhere between 10 to 20 hours to hit that point. While Larian's keeping schtum about the city, it seems like it's making the journey to get there meaty enough for some good anecdotes for the tavern.

Despite delving into someone else's toy box, there's no evidence so far that Larian has toned down its style or identity. My biggest concern was that *Baldur's Gate III* would be too beholden to the old games, but while it's shaping up to be an authentic D&D game, the same design philosophy that gave us *Divinity: Original Sin II* is very much at its core. Especially when everything is on fire. ■



FEATURE

Valorant

GO COUNTER.



STRUCK

VALORANT, Riot's first departure from the *League of Legends* universe, is a surprisingly traditional competitive shooter.

By Wes Fenlon

Huddled alone in a corner near bomb site A, I knew I didn't have a chance of sneaking in and planting the package strapped to my back. The defence had just wiped out the other four members of my team, and they knew the bomb was close. They'd be waiting to dome me as soon as I stepped around a corner. So instead I activated my ult, an ability I'd been charging up for half a dozen rounds. After a tense, vulnerable few seconds, I teleported clear across the map to bomb site B and armed the bomb, adrenaline pumping at the thought of pulling off a 1v4 upset.

"Unloseable!" says *League of Legends* shoutcaster David 'Phreak' Turley, who was helping my team of journalists learn the basics of *Valorant*, Riot's new competitive shooter. Unloseable for him, maybe. It was meant to be encouraging, but unfortunately Turley underestimated my ability to choke under pressure. The defence raced to my bomb site and I fumbled my other remaining abilities, throwing down smoke clouds that blinded me as much as they did them. Instead of hiding to scare off an attempted disarm, I went in – and down – guns blazing. They had just enough time to defuse my unloseable victory.

I'm still mad I blew my chance at glory, but the thrill of that moment has stuck with me. It showed how dramatically a well-timed ability in *Valorant* can alter a match, and made me think 'OK, maybe Riot has something here'. Because at first, I wasn't so sure. Hero abilities allow for clever strategies and exciting upsets, but look past them, and Riot Games has fundamentally spent the last five years building *Counter-Strike*.

TEAMFIGHT TACTICAL

Valorant is a 5v5 tactical shooter, meaning you move slowly, die real fast, and lose any semblance of accuracy when you try to run-and-gun. Weapons have heavy recoil, made more manageable when you stand still or crouch. Bullets penetrate doors and light cover. One round, one life, with one team trying to plant a bomb and the other trying to stop them. You even buy guns and armour at the beginning of every round and run faster with your knife (there is, of course, no sprint). These have been the fundamentals of *Counter-Strike* for 20 years.

Seriously, when I went to Riot Games to play its first new thing set outside the *League of Legends* universe, I didn't expect to be pulling out a knife to run at top speed in a game released in 2020.

"When you think of everything from old *Rogue Spear*, to *Counter-Strike 1.4* and *Counter-Strike 1.6*, and even *Rainbow Six: Siege* now, they're all playing in this tactical tradition of

BELOW: Abilities like this flame blast can only be used a couple times per round.

ANATOMY OF A BOMB SITE

Here's the breakdown of a standard *Valorant* engagement



1 This attacker is wide open, but the bullet holes in the wall imply the defence don't have great aim.

2 If the other bomb site is undefended, attackers could be sneaking through this back entrance.

3 Cypher drops a tripmine and keeps an eye on the bomb site through a sneakily placed camera.

4 A smoke ability, likely from our POV agent, makes it risky for attackers to enter the bomb site blind.

games that force you to play as a team and think about how you're going to break through an enemy line and conquer it. What we really liked is that concept," says game director Joe Ziegler.

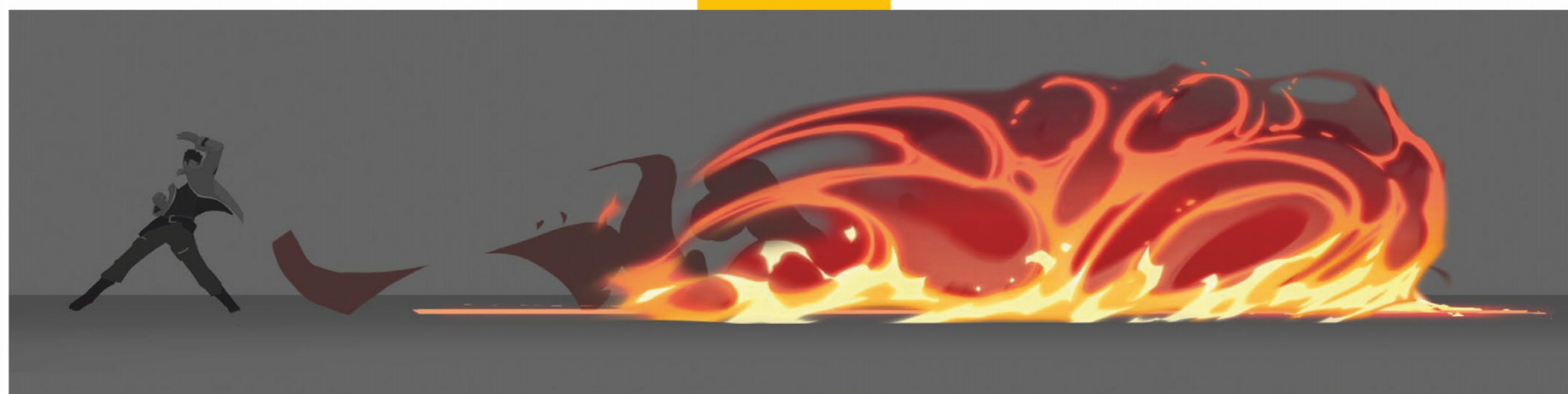
"The bits and pieces that we took inspiration from we've moulded into our own to create a package that we feel is very unique, but really we were thinking about how to expand on the creativity of it. Because in a lot of those games, historically, it's a game of inches."

The parts of *Valorant* that aren't pure *Counter-Strike* are similarly unoriginal. Character abilities feel straight out of a game like *Overwatch* (or *League of Legends*), but are scaled way back to only a few uses per match. Riot emphasised, again and again over two days of playing *Valorant* and talking to its creators, that the shooting is the main course and the abilities are the side dish.

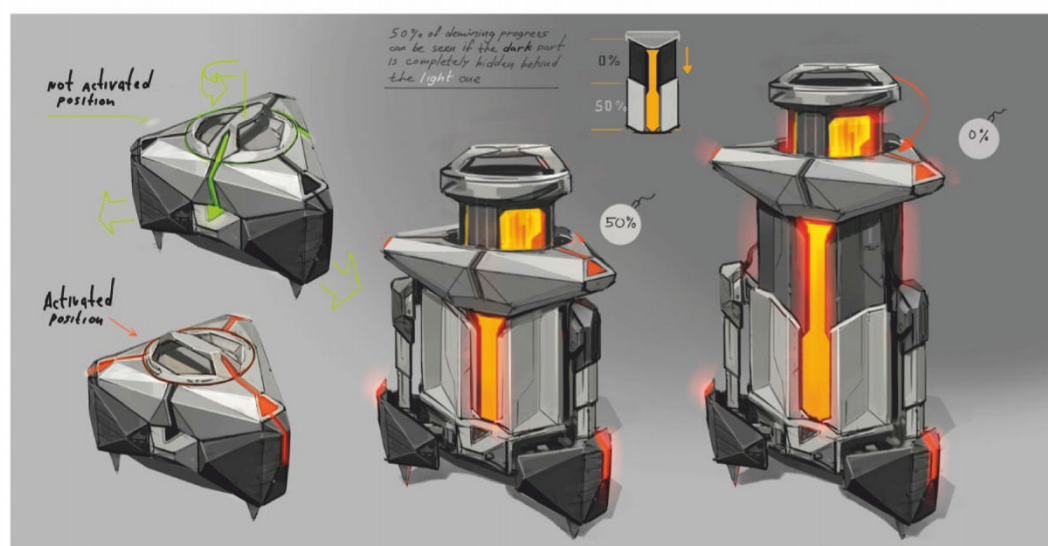
"An obvious default for us would be like 'Oh, just give agents all the abilities every round,'" says lead game designer Trevor Romleski.

But that's not *Valorant*. Each character has a single core ability they can use repeatedly while two others have to be bought and replenished each round, and can only hold a few charges. In the hands of a newcomer, trying to use them in a firefight is liable to get you killed.

It only takes a few bullets to put you down, even with armour. But a wall of poison or a flashbang that curves around a corner can completely upset an encounter in the hands of a pro. Their rarity does make them crucial, if



THE BIG PITCH IS THAT VALORANT IS GOING TO BE FAIR



body is deliberately simple in design so as to draw the eye upwards, and the colours and shapes of their torsos, clothing and hair are all tuned to frame the head so that every character, and every player, is on an even footing.

That may be common practice for FPS designers these days, but it ties into the common theme everyone at Riot spoke about when showing off *Valorant*: fairness. The big pitch wasn't that *Valorant* has bold new ideas, that it's going to be flashier or more creative than any other shooter. The big pitch is that *Valorant* is going to be fair. So fair that it bursts into flames if it goes outdoors without sunscreen. So fair that even the feistiest referee won't find any excuse to throw a yellow card. And it's going to accomplish that with really, really good netcode, and top-notch anti-cheat software.

you're not bumbling around with a bunch of beginners. "What we wanted to introduce is a targeted pace for the game," Romleski says. "We didn't want the first round to be this crazy explosive moment where tons of agent abilities are flying out, and we wanted some of the things that you [buy] in the game to be meaningful. So if you die, that actually impacts your economy.

"You may have to compromise on your weapon to get more abilities or vice versa. So we think that just enriches decision-making when you play, but ultimately it serves as a pacing mechanism for us where total ability use goes up as more money is introduced."

All the character designs follow a clean, athleisure/streetwear aesthetic that stays firmly grounded compared to the likes of *Fortnite* or *Apex Legends*. The diversity of the cast I got to see – eight out of at least ten who should be available at launch – was great, and Riot's artists are clearly talented.

But *Valorant* has a not-quite-comfortable combination of urban cool and real military (including bland gun models and real weapons like the AK-47) that ends up disappointingly restrained.

That aesthetic, like the rest of *Valorant*, seems to have gone through an agonising amount of consideration. Each character's lower

TOP: Stand still and crouch to keep your aim under control.

ABOVE: Bomb: armed.

RIGHT: Characters' hitboxes are carefully designed to be fair.



**“WE WANT IT TO BE
MORE OF A THINKING
MAN’S GAME”**



» NETROMANCERS

When it comes to the technology of *Valorant*, Riot has a deck’s worth of aces up its sleeve. First one: 128 tickrate servers. The faster the tickrate, the more frequently the server updates the game state – sending the locations of players and bullets and so on to each client computer. It makes everything more accurate and responsive, because all that data is being updated every 7.8125 milliseconds.

By comparison, *CS:GO*’s matchmaking runs on 64 tick servers; *Rainbow Six: Siege* runs at 60. Many games operate with even lower tickrates: *Fortnite* is 30, while *Apex Legends* seems to be only 20. Why? Double the tickrate and you double the server load, which means you need twice as many servers to run the same game. “Running a 128 tick server is unrelenting,” says Riot’s



engineering manager David Straily. “Anyone can do it on a micro scale, but to do it for everyone, globally, is where it’s really expensive. We have to actually run multiple 128 tick servers per game core on our CPUs. What that means is theoretically, if you ran our server uncapped, it has to be at about a 500 FPS server tickrate... if we could only run one game server per one server CPU on an actual physical computer, that’d be prohibitively expensive.”

Second ace: Riot Direct, an ambitious internet infrastructure initiative the company launched for *League of Legends* five years ago. Even if you have a fast home internet connection and a 128 tick server, it’s irrelevant if your packet takes a slow, circuitous path to get where it’s going as ISPs prioritise other traffic. Riot basically built its own internet backbone, installing routers all over the world and signing deals with major ISPs to route Riot’s game traffic directly across their network, rather than the open internet. *Valorant* can make use of the same network, meaning at least 70 per cent of its players, at launch, will have a ping of less than 35 ms. “No other game has something like this,” Straily says.

Third ace: anti-cheat factored into the very design of the game. Riot integrated an anti-cheat team into *Valorant*’s development before it even

TOP: The magnum is a pricey sidearm, but seriously rips.

ABOVE: Minimalist gun designs pave the way for skins.

LEFT: Can you tell Viper is all about the poison?

went into pre-production, and they vetted every design choice for its potential hackability. It's server-authoritative, so a player's client can't disrupt a match with a cheat saying "I'm invincible". But many cheats are more sophisticated than that. Anti-cheat lead Paul Chamberlain gave a basic example: your crosshair doesn't turn red in *Valorant* when you aim at an enemy, because a hack could read that pixel and instantly pull the trigger, guaranteeing a hit.

Even what it feels like to fire a gun in *Valorant* was influenced by the anti-cheat team. "When we were talking about how recoil for guns should work, we spent a lot of time discussing how much to trust the client. Because if you trust the client, then you can write a cheat that ignores recoil," Chamberlain says.

"However, if you don't trust the client, it becomes this prediction problem, where you might look like you've shot a bullet accurately on your computer, but the server disagrees, and tries to find a balance. For the most part, we've landed on the very secure end of the spectrum, but there's always a trade off."

Fourth ace: a particular dedication to mitigating peeker's advantage, an eternal challenge in competitive shooters. Say you're standing next to a wall in *CS:GO*, and there's an opponent just around the corner. If you strafe out, just for a moment, you can see where your opponent is before they have a chance to react – by the time your movement is sent to the server, the server sends it to their client, they input a command, it goes back to the server and then back to your client, you're already safe behind cover. And if you round the corner guns blazing, you'll always have an advantage, as your opponent's window of opportunity to react is smaller.

Strailly says the team has gotten that window down to 60 milliseconds, which could affect *Valorant* more deeply than you might think. "It's simply more strategic if you have to think about going around a corner by using a utility or an ability from one of your characters."

"You have to think more critically, and we want it to be more of a thinking man's game."

Valorant's developers want you to trust, absolutely, that when you died, there was no hanky panky. That when you fired a bullet at someone's head, the hitbox was exacting, and lag didn't rob you of your headshot. And they seem to be banking on the idea that competitive shooter players, people who love games like *Counter-Strike* and *Rainbow*



Six: Siege, will be drawn to a game that stonewalls cheaters and uses the fastest servers in gaming. Its bona fides are undeniable.

But is that really enough to make people want to play it?

ABOVE: Fire from the hip, and you're definitely not hitting that shot.

SHOTS FIRED

Valorant is going up against games that already have millions of players. Maybe enough of them are disgruntled by network issues or simply bored of the same old, same old, and that'll give *Valorant* a healthy audience. But it's still surprising that the game hews so closely to what's been done before, with its big draws just being fairness and reliability. Will that really work on players who are, right at this moment, content to shoot it out on *de_dust2* for the 30,000th time?

Well, *League of Legends* made that bet by adapting a *Warcraft III* mod, and it became the biggest game in the world. So maybe Riot knows what it's doing.

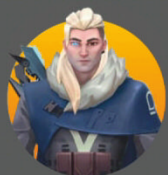
Like Joe Ziegler says, getting better at tactical shooters – learning the right defensive rotations, controlling recoil just a hair more accurately – is traditionally a game of inches. Maybe iterating on their design is, too.

"We're really looking at how you re-fix the puzzle with all these characters," Ziegler says. "How's every game completely different? Instead of walking in and going 'they're guaranteed to have three smokes and two molotovs in this location'. Now it's like 'they have this set of characters, these are the sets of strategies they might try to employ. How do we work against that?'"

"There's no wall in our workspace that says 'demolish *CS:GO*' or 'take half of *Overwatch's* players'," adds executive producer Anna Donlon. "Those aren't our success criteria. I think there are a lot of players out there who haven't found their shooter of choice yet. Or they find one they like for a while and bounce off of it. Maybe we're for them. We're definitely not going to be for everybody. We know that for sure."

Whoever *Valorant's* for, I think at least one thing's safe to say: their ping is going to be great. ■

KNOW YOUR AGENTS *Their backstories are still a mystery, but we know what to expect from these agents when the guns come out*



SOVA

Sova's ult is a blast: he fires magic arrows through walls clear across the map.



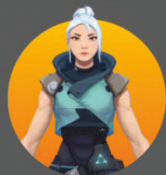
PHOENIX

Phoenix is all about the fire. His flashbang skill can be curved around corners.



CYPHER

A defensive agent, Cypher can throw tripmines and stick a camera on walls to keep watch.



JETT

The rare agent with a vertical leaping ability. Jett can get airborne and hurl knives for quick kills.



VIPER

Viper's poison clouds are zoning tools, blinding enemies, herding them into fire.

FEATURE

Halo: The Master Chief Collection



Halo: The Master Chief Collection

REMASTER CHIEF

Behind the scenes
of **HALO: THE
MASTER CHIEF
COLLECTION.**

By Wes Fenlon

Halo: The Master Chief Collection

Slayer!" Is there a voice clip I've heard more in my life than *Halo's* gravelly announcer preparing me for combat? Maybe one of his other callouts: "Double kill." "Triple kill." "Overkill!" (OK, now I'm just bragging). If there's anything truly and utterly timeless about *Halo*, it's that voice playing over the warm blue sky and dusty fields of Blood Gulch. *Halo: Combat Evolved*, now released for *The Master Chief Collection* on PC, looks today exactly as it always has in my mind's eye: the same as it was on chunky CRT TVs at splitscreen LAN parties, the same as it was on the PCs in my high school 3D modelling class. My memory, of course, is wrong.

The Xbox and gaming PC and CRTs I played on in the early 2000s couldn't run *Halo* at 144 fps, and they definitely couldn't do it at 4K. If I went back to them now, I'd grimace at the low resolution, and how sluggish it actually felt to hop across Blood Gulch. But this new version of a near-20-year-old game is sharp as hell and more responsive than ever, even if its polygons are old enough to drink. Making a game look and sound like it does in your memory, but not newer, is the delicate balancing act of *The Master Chief Collection*, which 343 Industries is bringing to PC this year one *Halo* game at a time.

There's no detail too small for the fans to notice. Case in point: another classic *Halo* sound, the respawn beep,

was slightly different in the original PC port, made by Gearbox in 2003. When 343 created *Halo: Combat Evolved Anniversary* for Xbox, that PC port served as the foundation. But a few things weren't right, which they now have an opportunity to fix.

"That respawn beep is so iconic, you know what I mean?" says Sean Swidersky, associate producer on *The Master Chief Collection*. "Between the two versions there is a difference in tone ... I think our pillar here is to align to the legacy games as best as we can."

"It does get super complicated," adds senior producer Mike Fahrny. "Just because we have source assets and code and all that stuff, it isn't a magic bullet most of the time. It does require a lot of digging."

"There's a lot of rabbit holes we go down. And then you add the fact that *TMCC* is all these things in one, right? It gets very, very complicated."

Over the course of a long day at 343 Industries in Redmond, Washington, I talked to the team ending Master Chief's PC dry spell about the success of *Halo Reach* in December, all the intricacies of retrofitting old games for new hardware, and got the scoop on the latest release, *Halo: Combat Evolved*.

When Mike Fahrny started on the *MCC* team last year, the first thing he did was go out and buy an ultrawide monitor. They didn't have one, and he knew ultrawide support would be one of the features PC fans asked for. "I'm a PC enthusiast. It's one of the reasons they brought me in," he says. "We have a lab set up that can do various hardware settings, and then fighting was really key for us in having the successful launch that we did. I think one of the big mistakes that studios developing for PC make these days is they do it kind of in a vacuum. We decided very early on we didn't want to do that."

IT'S COMPLICATED

This ideology of 'fighting' – essentially beta testing – started at 343 Industries before *The Master Chief Collection* came to PC, but it's hard to overstate how transformative it's been for *Halo*. Back in 2014, *TMCC's* release on the Xbox One was something close to a disaster. Online play

RIGHT: *Halo: Reach* debuted big on Steam with about 150,000 players at launch.

BOTTOM LEFT: *Halo: Combat Evolved's* campaign got a big makeover in 2011.





ABOVE: *Combat Evolved's* The Silent Cartographer mission is still an absolute banger.

simply didn't work for many players, and other issues big and small made the whole thing feel barely held together with tape. It was a black eye for 343 that didn't fade until 2018, when a new dedicated team started to rebuild Master Chief.

"I believe that was the beginnings of the first time the studio has ever had a fighting program where we started to work on this system of alpha-style builds to iterate on with players giving us feedback," says Brian Jarrard, community director on the project.

Jarrard writes many of the massive community updates that have come to define 343's new era of transparency around rebuilding *The Master Chief Collection*, and it was on an Inside Xbox stream in early 2019 that he announced *Halo* was finally coming to PC. Inspired by a viral Reddit joke, ecstatic PC fans started sending pizzas to the 343 office. As more and more pies piled up, he had to beg them not to send more.

"They expect a lot, and the bar is very high. My guess is there's a lot of pent-up sentiment that a lot of times PC gamers feel like they're getting the leftovers from consoles, getting bad ports. So it was important to us that this could not be just a port. We had to figure out the way to make it feel like it was a native PC product."

The exciting news is that every game is up and running on PC right now, in various stages of completion. The list of expected features is easy to rattle off: unlocked framerates, 4K support, dedicated servers, mod support. Actually implementing them... well, that's less so.

Let's start with framerate. Say you're simply taking a game originally locked to 30 FPS and making it run at 60 FPS. When game code is written, explains technical director Andrew Schnickel, some things are set to happen every 1/30th of a second, while others are programmed in relation to one 'game tick'. At the original framerate, those would be equivalent. But if you double the framerate, all of a sudden they aren't. This can make guns fire too quickly, or effects animate at the wrong speed. It can even break bits of the campaign, because scripts don't trigger properly. It varies from game to game.

MAPS OF MY YOUTH

These two maps dominated Halo: Custom Edition community servers. Will they make a comeback in 2020?



WARTORN COVE

Two valleys open out into a cove where a tank sits, waiting to dominate the map. CTF matches were full of heroic and foolish warthog runs, trickery with the teleporters, and hopeless assaults on that tank.



NEW MOMBASA CLASSIC

An at-the-time awe-inspiring recreation of Bungie's 2003 E3 demo for *Halo 2*, turned into a multiplayer map. Vehicles could dominate the wide city streets, but the sewers made sneak attacks a thrill.

"It's hard to go through all the mission scripts line by line and go 'Oh, this is going to be a problem,'" says Schnickel. "It's easy to miss stuff and sometimes it would just exhibit in weird ways. There was one in, I think, the *Halo 4* Spartan Ops – there was a jackal up on a cliff somewhere, and you couldn't kill him. You'd be shooting at him and he just would not die. It was a script timing issue, so it just takes a lot of careful debugging to find that."

Uncapped framerates are even harder for old games, since the original programming's dependence on frame timing goes completely out the window. Animations are tricky. If they were created for 30 fps, adapting

them to a framerate like 144 fps requires a lot of interpolation – the path the animation takes between defined key frames. That can have some weird side effects, like graphics clipping through one another. Fahrny says their first animations for *Reach* even caused motion sickness in some players. The brain can tell something weird's going on with that kind of interpolation. But creating completely new animations for these old games isn't feasible, so it takes a lot of iteration to get it as good as it can be.

Little quirks pop up everywhere, from the netcode to the controls. *Halo Reach* plays like a dream on dedicated servers, but strangely, the AI Grunts in the Firefight mode lost





» the ability to jump up onto boxes. Sean Swidersky, who comes from a pro-gaming background, mentions that in early test flights European players' grenade throws seemed to be delayed. After upgrading some of the Microsoft Azure servers used to host games, and making some changes to how network traffic is relayed, they started behaving as they should.

At launch, the most widespread criticism was that it sounded muffled and just... off, from the original. It hasn't been a quick fix. "It's caused us to go back and say 'Hey, we should just take a look at the audio for all titles,'" explains Mike Fahrny. "Reach's [digital signal processors] for whatever reason were not great, so let's go back to a partner that has the sources for these, rebuild them for modern platforms, while we have an actual audio engineer go back through and make sure everything is balanced and levelled properly. That takes a long time."

While fans see 343 as the monolithic studio in charge of *Halo*, the truth is that the team behind *The Master Chief Collection* is small. Most of the work is outsourced, with Fahrny and his team steering the ship. "Sometimes things just take time, and it's hard to communicate that out to the fanbase," he says. "This is modern game development. We need to not be scared to say 'Yeah, we ran into some problems. This is what our plan is, let's talk about that, let's work together on it, we're going to flight it, please give us feedback on it, what you say matters to us, we'll adjust'. It's moving along

pretty well. I think people will be happy with the end result, though they've had to wait longer."

EVOLUTION

The Master Chief Collection began on PC with Bungie's final *Halo* game. Now it's followed that with the first: *Combat Evolved* followed *Reach* onto Steam on March 3. I spent two hours at 343 bouncing between campaign missions in a near-final build, which sported upscaled versions of the 2011 *Anniversary* makeover graphics. The geometry is still mostly simplistic, but it looks great for its age. All the character models are far more detailed than they used to be, and major characters like Commander

ABOVE: Master Chief meets 343 Guilty Spark, and almost ends all life in the universe. Oops.

Keyes and Sgt Johnson have gotten especially big upgrades.

The textures on your marine companions and the aliens of the Covenant are sharp and well-defined, instead of borderline amorphous blobs. And it has real lighting!

Multiplayer never got the same makeover, but I'd argue that's actually a good thing. There's a purity to the first *Halo*'s multiplayer that I love, even if, like a lot of players, *Halo 3* is the one I'm really waiting for on PC. With more detailed graphics, the simple geometry of classic maps like Blood Gulch and Hang 'Em High would look out of place, but adding objects to the maps would change how they play, and go against *TMCC*'s mission of preservation. Of all the games, *Combat Evolved* is the one for which 343 should be least concerned about balance.

"You know the story behind the pistol, right? That was actually a bug and it shipped that way," Jarrard remembers. The almighty *Halo: CE* pistol and its killing power has been the subject of debate over the years, mostly whenever a successive *Halo* comes out with an inevitably weaker magnum. But today it's firmly part of *Halo*'s legacy. "In retrospect, if we had flighting back then, we probably would have had overwhelming feedback that would've made the team completely nerf that thing into the ground. But after the fact, the studio decided to just leave it."

The other key to *Combat Evolved*'s legacy, at least on PC, is modding. I spent one summer as a teenager playing the same map day after day,

CONTROLLED CROUCH

How do you ensure Halo still feels like Halo, no matter the controls?

It turns out *Halo*'s analog stick crouch doesn't work on the digital inputs of WASD. The fix, coming soon, is noticeably faster. "You do get more freedom to crouch as you're moving," says Sean Swidersky. "Some users feel this is natural for sure, but I'm more curious about the competitive side of things... It's not too outrageous, but seeing someone crouch super fast, in those older games, it just looks different."



CTF matches dragging on for entire afternoons. For console players, the equivalent was probably Blood Gulch or Sidewinder. For me it was Wartorn Cove, a custom map that dominated community servers back in 2004. Because the multiplayer in the *TMCC* port is largely unchanged, it should be easy for modders to get old maps like that working again.

Long term, Fahrny wants to build out *TMCC* with direct modding support. That could mean releasing tools, building a custom game browser, and even supporting the Steam Workshop, which he says they'd "still love to investigate doing". Right now, the focus is on getting all the games out on PC, and to at least make them as easy to mod as possible. *Reach* can be launched with anti-cheat disabled to facilitate mods, and 343 is working on a new EULA, inspired by *Minecraft*, to let modders preserve some ownership of their creations.

"WE GIVE THE KEYS TO THE COMMUNITY AND IT'S OFF AND RUNNING"

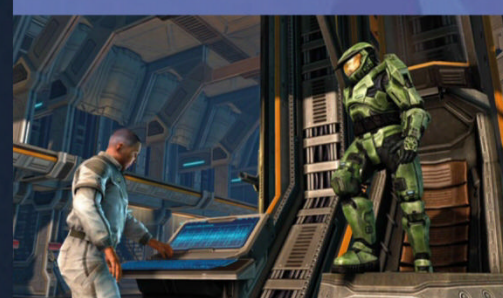
When we talk about mods, Swidersky excitedly asks everyone if they've seen the nuke video on Youtube. Someone already modded a nuke launcher into *Reach*, complete with some impressive explosion effects and huge damage (it annihilates a Scarab, *Halo's* equivalent of the AT-AT, in one shot). He's excited about the idea of custom games playing with the rules of *Halo*. Could someone mod in *COD*-style kill streaks that can earn you a nuke launcher? Weirder things have happened...

One of the programmers on the team, Sean Cooper, was a longtime member of the *Halo: CE* mod community, before moving on to mod *Halo Wars* and eventually working on the series. Fahrny hangs out in a Discord server dedicated to modding. The *TMCC* team has five games to go before this PC journey is finished – and with *Halo Infinite* coming in 2020, too, it's a hell of a year for *Halo*. But it seems like the truly exciting times for the series on PC, at least for *Combat*

Evolved and its mod scene, start when all the launch fires have been put out and all the bugs have been squashed.

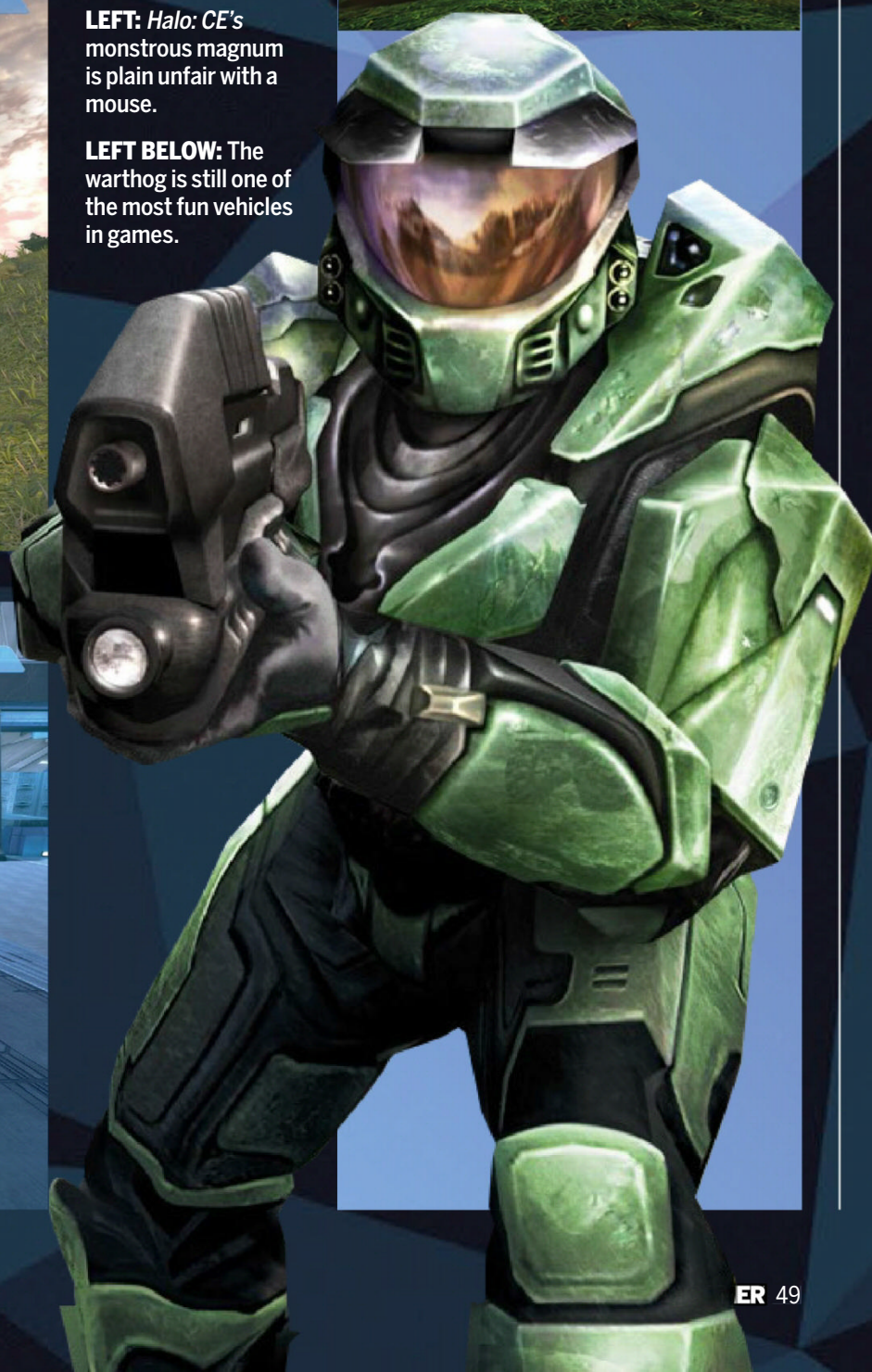
"The future of the *MCC* is the community, says Fahrny, "and how we empower them."

"That's kind of always been the master vision, is [our team] creates this amazing foundation, and then we give the keys to the community and it's off and running," adds Brian Jarrard. For the first few bitter years of the *Master Chief Collection's* life, that would've been a hard sell. Now? It seems like *Halo* fans can believe again. ■



LEFT: *Halo: CE's* monstrous magnum is plain unfair with a mouse.

LEFT BELOW: The warthog is still one of the most fun vehicles in games.



techradar.



The home of technology

techradar.com

Join the conversation!



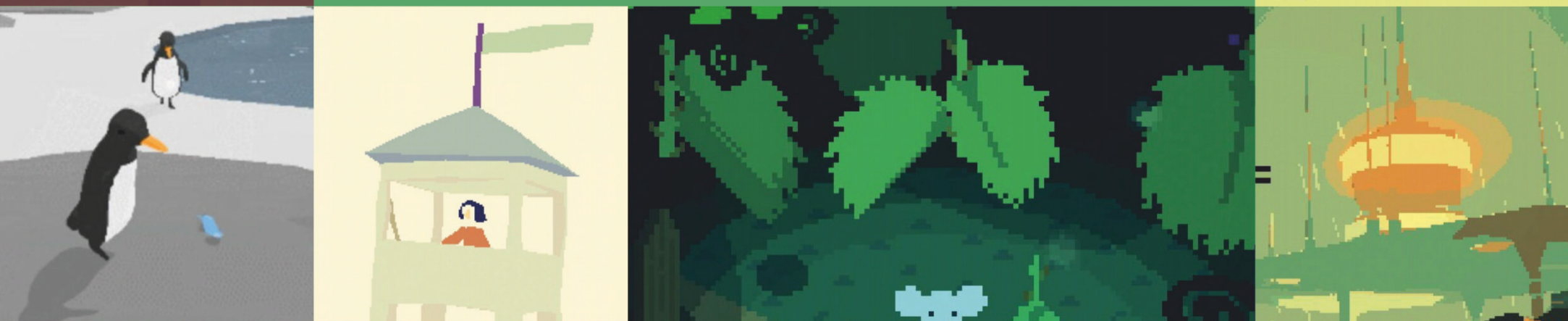
Discuss all things PC gaming with fellow
readers at our official forums

forums.pcgamer.com

PC GAMER



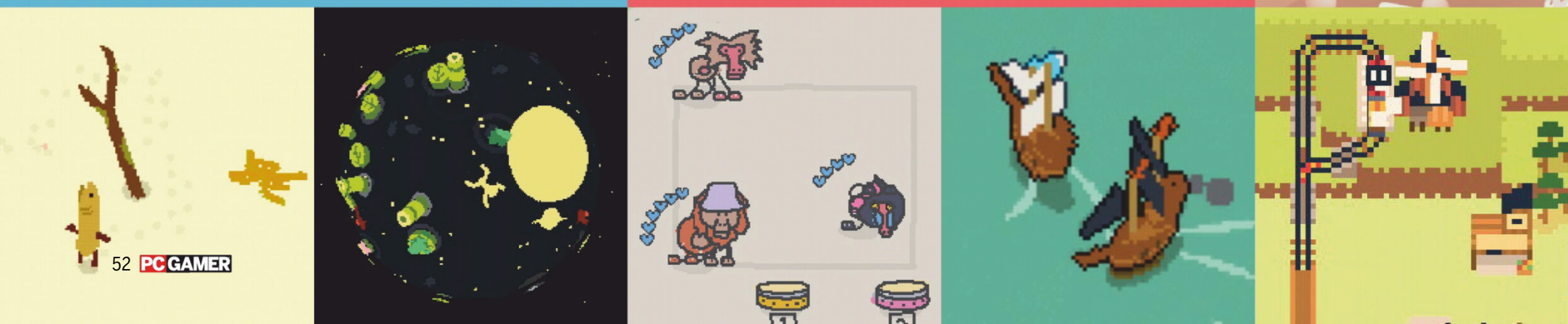
INFINITE



GAME



JAM



Meet **SOKPOP COLLECTIVE**, the indie studio releasing two new games *every month*.

By Fraser Brown

Meet **SOKPOP COLLECTIVE**, the indie studio releasing two new games *every month*.

By Fraser Brown

A graphic featuring a large, yellow, rounded rectangular sign with the word "STOP!" in bold, black, sans-serif capital letters. The sign is mounted on a white pole. Below the pole is a small, brown, cylindrical pedestal. On top of the pedestal is a small, white, stylized figure with a red nose and a small red bow tie. The background is a light orange color with a pattern of small, white, star-like shapes and larger, faint, pinkish-red circular patterns.

Every fortnight, a visit to Sokpop's Itch page – and, more recently, its Steam page – guarantees a new treat. Maybe you'll drive through the rain to hunt down bounties in *Blue Drifter*, explore a pink sky castle in *Labyrinth* or spend an hour solving puzzles on *Pear Quest's* little island. In two years, Sokpop has released more than 50 games, and it shows no signs of slowing down. >>

Every fortnight, a visit to Sokpop's Itch page – and, more recently, its Steam page – guarantees a new treat. Maybe you'll drive through the rain to hunt down bounties in *Blue Drifter*, explore a pink sky castle in *Labyrinth* or spend an hour solving puzzles on *Pear Quest's* little island. In two years, Sokpop has released more than 50 games, and it shows no signs of slowing down. >>

» Aran Koning, Ruben Naus, Tom van den Boogaart and Tijmen Tio met around five years ago when they started doing game jams together, including the popular Ludum Dare. When there wasn't a formal one to go to, they'd just jam at home.

Those events always came to an abrupt end, but they wanted to keep it going. The collective grew from that, leading the four of them to embark on what's become an infinite game jam. But they rarely work together.

"We basically never collaborate," says Koning. At the time of writing, they've released 54 games, though that number will already be out of date when you read it. Only a couple of games in this rapidly growing collection were collaborative projects. So it's a collective of individuals, all equal within the studio, but always following their own ideas and going off to experiment solo.

This contributes to the incredible range of Sokpop's massive back catalogue. There are cute sandboxes, puzzlers, management games, racing games – and the themes and art styles are just as varied as the genres. A great deal of them fall into the category of 'wholesome' games, some more overtly than others, but otherwise it's remarkable how the foursome avoids repeating itself.

SOK IT TO 'EM

"I think we all try to make innovative titles in one way or another," says Naus. "We don't want to just make *Call of Duty* or something. We always have a pretty unique idea for every game. Nobody is like, 'I'll just make a platformer'. There's always one cool idea, mechanic or even art style that's unique to that game."

"Something that might not work, but is still cool to try out," Van den Boogaart says. For him, nostalgia plays a big role in the games he develops. "I tend to recreate games I played as a kid," he says. "Five of my games are games I played as a kid. It feels a bit more personal." Alongside his smaller games, Van den Boogaart is also working on a larger follow-up to *Bernband*, a strangely comforting game about getting lost in an alien city. It's an aimless labyrinth, but around every corner some kind of sci-fi curiosity.

Naus, whose work includes *Sok-Stories*, a game creation tool, and *Soko Loco*, a pixel art train tycoon game, has plenty of concepts cooking away at once. "I have a lot of ideas that are in the oven, and when they're done, I pick the one I think I have the most clear vision for. I think about the games for pretty long in the background, and when an idea comes to fruition, I pick that one."

For Koning and Tio, however, it changes all the time. It could be a game based on a movie, on another game, or an experiment to try out a new mechanic or experience. That goes for most of the collective's games, though, which constantly bounce around. But whatever they decide to make, there's always a looming deadline.



ABOVE: Having killed everything else, the ninjas have finally moved onto frogs.

LEFT: Ruben Naus, Tijmen Tio, Aran Koning, and Tom van den Boogaart.



Sokpop runs a Patreon that gives subscribers two games a month for \$3, instead of the \$3 each they normally cost. It's approaching 1,300 patrons now, earning the studio just over \$4,587 a month. The deadline informs the scope of most Sokpop games, which is why they're typically bite-sized. "That definitely influences my ideas," says Koning. "This is roughly what I can do in four weeks."

"We really struggle with deadlines," explains Van den Boogaart, laughing.

SPEEDRUNNING

The Patreon ensures they finish their games, however, because normally they wouldn't. "Now we have to," says Tio. "So we did it on purpose. When you have a deadline, you just have to do it. It doesn't really matter if it doesn't work out, because all the patrons and fans know that if the game is released in two weeks, it might not be the best game."

It sounds like a lot of pressure, especially keeping it going for more than two years, but this is where doing solo projects works in their favour. They each take turns, so every developer has a two month gap between games. That's still intimidatingly close, but significantly more than you'd get in a game jam. Sometimes ideas get scrapped and delays happen, but there's not nearly as much room for either as there is in conventional game development, where delays of months or years are common, and the cutting room floor is full of discarded ideas.

These self-imposed limits and deadlines actually free up Sokpop to pursue new, weird ideas and just stick with them. Maybe they don't always work, but when a game doesn't quite come together, there's always another one coming in a fortnight. It keeps patrons and players stocked

MAKE CHANGE *The many styles of Sokpop*



1 Sokpop's games are often wholesome, whimsical romps bursting with colour. They're fun experiments with an equally playful style.



2 On the other side of the spectrum are the moody experiments – a strange alien city, a lonely night time drive, an evening in the North Sea.



3 While art often plays a central role in Sokpop games, it can also be understated and minimalist, creating more space for the mechanics.



4 And sometimes it gets weird, with potato men playing a game of dodgeball; or jumping inside some fruit to catch grinning worms.

up on games, while Sokpop can quickly move onto something new or iterate on older ideas that have the potential to be developed further.

Between the smaller games, each developer is working on a larger project. Tio made a new, bigger version of *Simmiland*, a card-based god game; Naus recently released a 'deluxe' version of his train tycoon game, *Soko Loco*; and Koning is making a more ambitious version of *Skidlocked*, the urban biking game. They work on their smaller game for four weeks, then they switch to the bigger one.

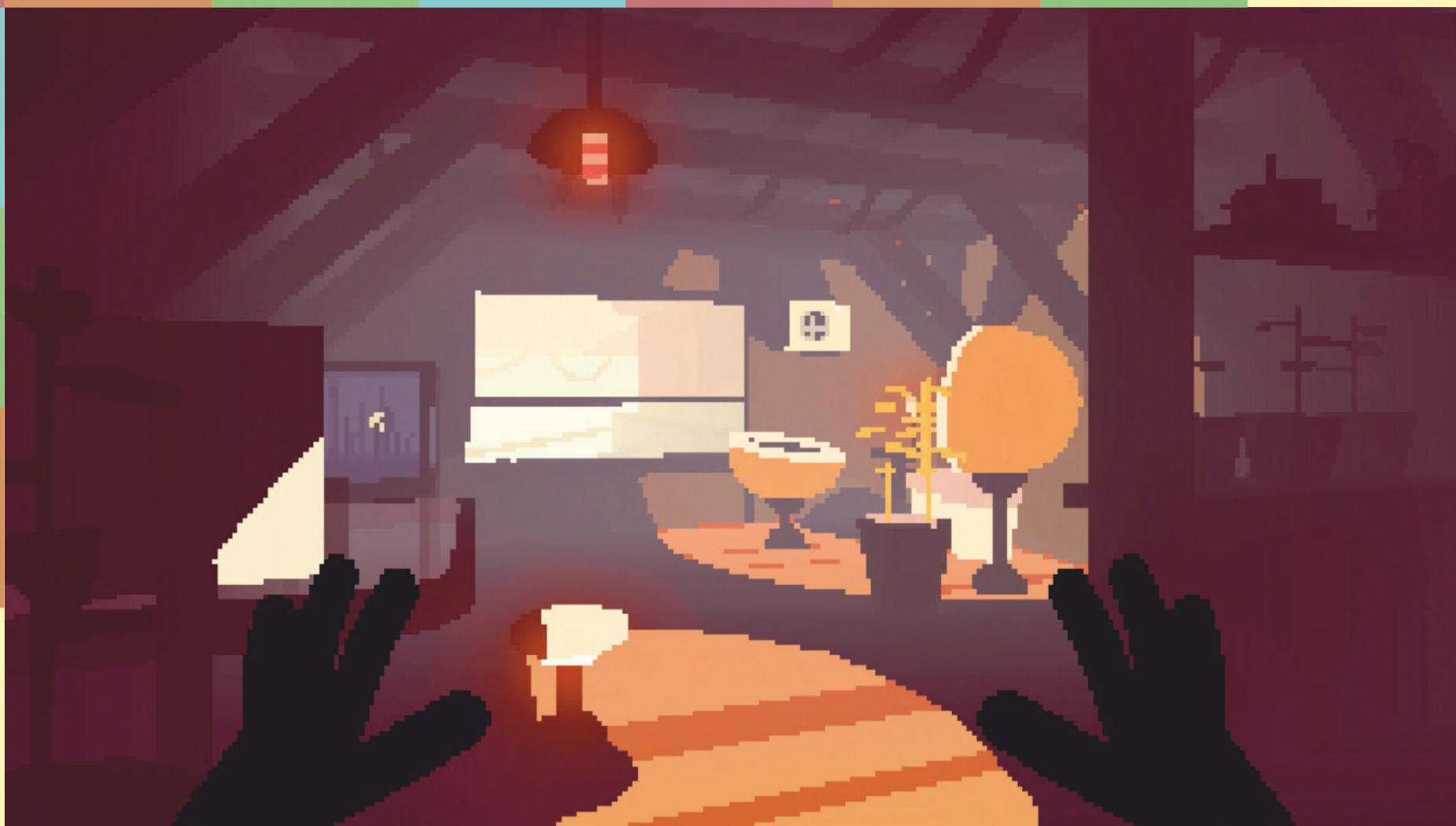
"The big projects don't usually go that fast, at least not as fast as you'd expect from a regular studio, because we also have to make a new game every two weeks," says Koning. "That's the trade-off."

Since the smaller games are the ones with the deadline, the others do end up taking a backseat. And after getting so used to always having something new to create, it can be a bit dispiriting to return to something they've been tinkering away on. "It's pretty hard to combine them," says Naus, adding that he's always ready to move onto something new. They've all got the itch. And it's also what the collective >>

**"WHEN YOU HAVE
A DEADLINE
YOU JUST HAVE
TO DO IT"**

TOP: *Pupper Park* has excellent dogs. Look at him.





» has become known for. The cavalcade of novel ideas, playful experiments and cute diversions has become its brand identity.

Many of Sokpop's creations have an endearing quality that make them very gifable, so they found a home on Twitter. A community has also sprouted up in the wake of the Patreon, so every game is guaranteed players and feedback. It's not until pretty far into a game's development that anyone can really know if it's going to resonate with people, but Sokpop doesn't have to worry about that. "Whatever game we release, there's an audience for it," Koning says. "There's always at least one of our patrons who's like, 'This is my new favourite game', for every game, and it's super fun to have that many people playing all these smaller games."

LONG GAME

With the Patreon now in its third year, the developers are still enthusiastic about the platform, though they've been surprised to see it keep growing. It was a gamble, with none of them knowing if it was going to last for a month or a year, but now they've got nothing stopping them from carrying on for the foreseeable future.

"I feel like we could do this for a long time," says Tio. "It feels like a dream, making small, experimental games. It could be anything. Right now, the next game is the one I'm releasing, and it's a text adventure MMO. I think it's kinda weird, so I'm really excited to see people play it. The most fun thing about making games: watching people play with it and seeing their experiences. Now when we make something, we know

**"WE MIGHT BE
MAKING TOO MANY
ACTUALLY, EVEN FOR
OUR FANS"**

for sure a few hundred people will play it, and we'll get to talk to a bunch of them in the Discord."

Patreon effectively lets Sokpop run a game subscription service without needing to worry about processing payments or the platform itself; with the increasing popularity of the subscription model, it seems well-timed. While Sokpop isn't averse to its

games appearing on other platforms, like Apple Arcade or Humble Monthly, it offers something quite different from the norm. Every game patrons get from Sokpop is brand new and, with their small scope, won't contribute to the dreaded backlog. Well, not too much.

"We might be making too many games actually," says Tio. "Even for our fans."

Every year, Sokpop decides if it's going to keep doing the Patreon for another year, or if it maybe wants to shake things up. It's going to continue throughout 2020, and

TOP: *Bernband* offers a window into a strange, alien world.

BELOW: Cycling through traffic makes *Dark Souls* look easy.





then it will be evaluated again. “But the chances are we’ll keep doing it,” says Tio. That’s not to say the collective isn’t making other changes. In January, it released around 50 games on Steam in a single day.

FULL STEAM

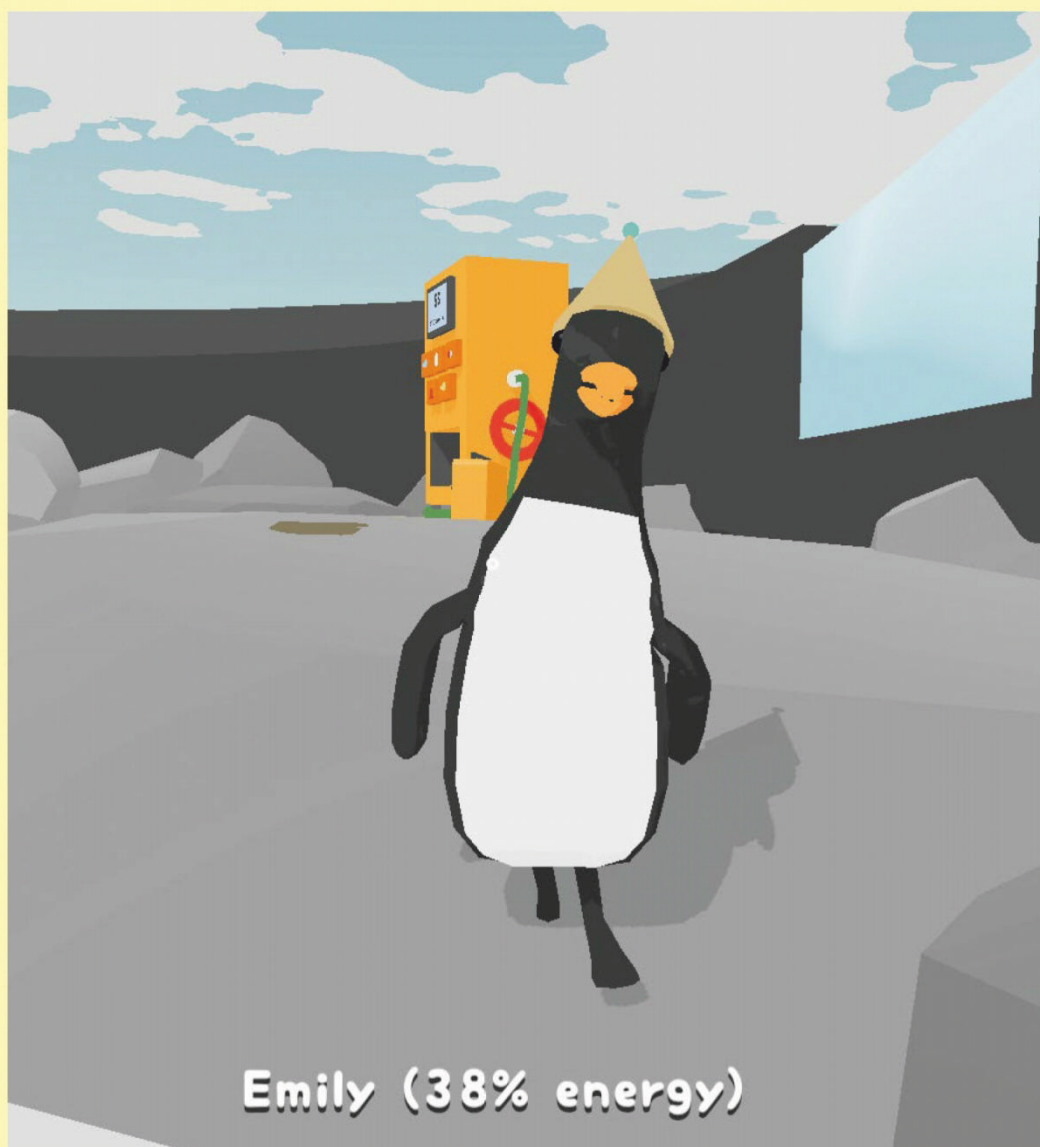
“We had this huge backlog of games that we’d made over the last two years. I think we started looking into it last year,” recalls Koning. “We thought maybe we should bring these games to Steam because there’s a bigger audience there, and we figured it was something cool we could do for our patrons, so they could have Steam keys for our games.”

“But then the process took a long time because we were trying to catch up with putting these games on Steam while still making new ones. It took quite a lot of work to make sure it was properly caught up.”

“We’re still missing one game,” Tio adds. “Actually, two, because by that time I’ll have another one.” Despite groaning at the realisation that they’ve got more catching up to do, the four of them are pleased with the Steam launch. In a week, Sokpop’s gross revenue was half of what it’s made on Itch since it started. But they’re very different platforms with different benefits.

Steam has the numbers, of course, but there’s also a lot more competition, as well as the dreaded algorithm to contend with. Most developers are in the same boat, but releasing 50 games at once also put Sokpop at a disadvantage.

The problem was that there was no build-up or opportunity to get on people’s wish lists, and with so many games dropping at once, none of them got a big enough launch spike to take a coveted spot on the ‘New and Trending’ list.



MEET THE DEVS

The Sokpop Collective



RUBEN NAUS

Last game: *Labyrinth*
Spend half an hour climbing up a pink castle in the clouds, hunting down crystals and admiring the floaty cloth physics.



TOM VAN DEN BOOGAART

Last game: *Blue Drifter*
Earn enough cash to get off a wet, gloomy world by hunting down crooks and collecting bounties.



ARAN KONING

Last game: *Goblet Cave*
Travel deep inside a network of caves to find the goblet, using bombs, ropes and a suspiciously convenient shop to reach your goal.



TIJMEN TIO

Last game: *Uniseas*
Squabble over the New World with your pirate fleet, fight other captains, and conquer some islands for yourself.

Itch, meanwhile, doesn’t generate as many sales, but Sokpop games are more likely to be featured on its front page, while the audience is more open to the collective’s style.

“I think people on Steam were like, ‘It was cool, but I finished in half an hour, so why did I pay \$3?’,” says Naus. “Nobody complains about that on Itch. The audiences are different, but Steam was a logical next step for us. Steam just has more traffic, and I think there are still people interested in these kinds of games.”

Beyond Steam, the collective’s considering releasing a game on consoles, and even working with publishers, though probably not for the small games. “We want to have that separate and be our own thing where we have the freedom to do what we want,” says Koning.

The Patreon and its wildly diverse mountain of experiments seems to be what the collective is proudest of, and hopefully the tiny surprises will continue for many more years. ‘Games are too long,’ is a common refrain, so being able to browse a massive list of games where most of them can be enjoyed in the time it takes to download a *Call of Duty* update is a real treat. “It’s also a really steady source of income,” says Naus. “So unless everyone makes a big hit, we kinda have to keep doing it!” ■

ABOVE: There’s nothing more tragic than a pooped out party penguin.

TOP LEFT: *Sok-Stories* lets you create your own games from doodles and upload them.



sokpop

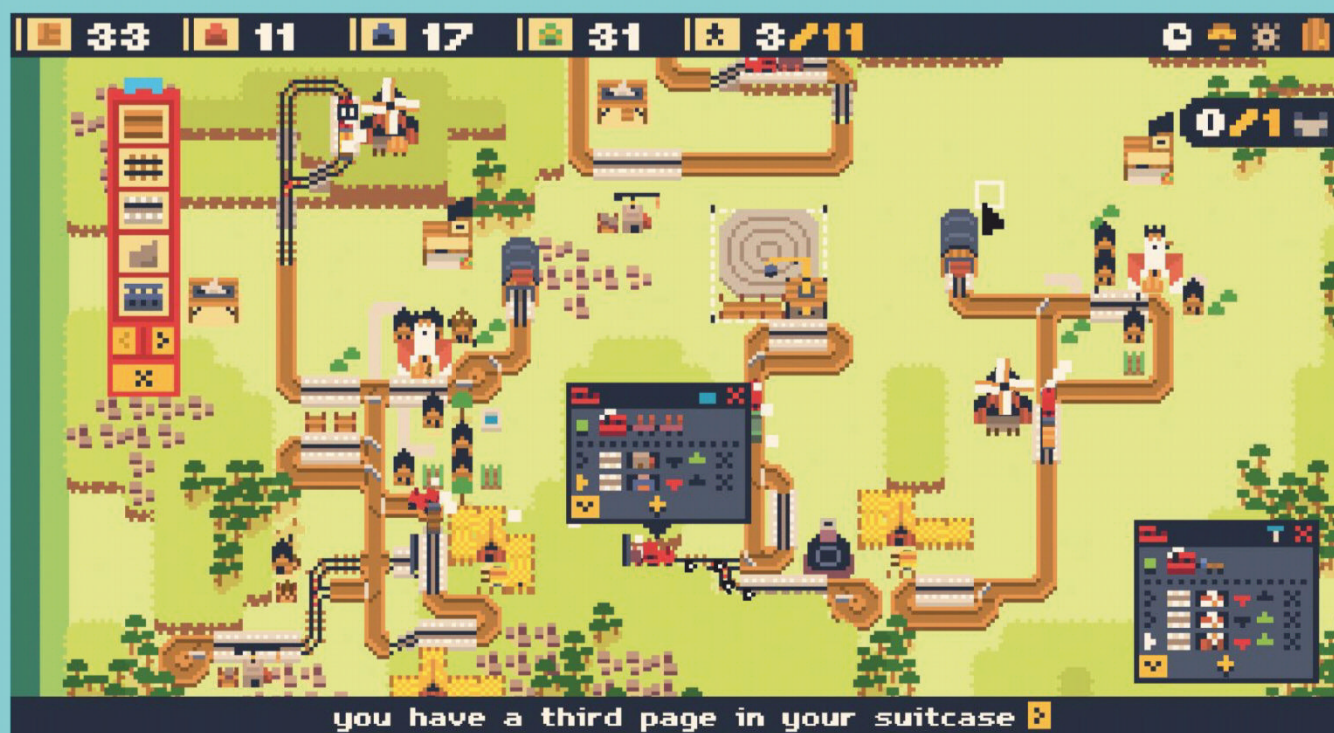
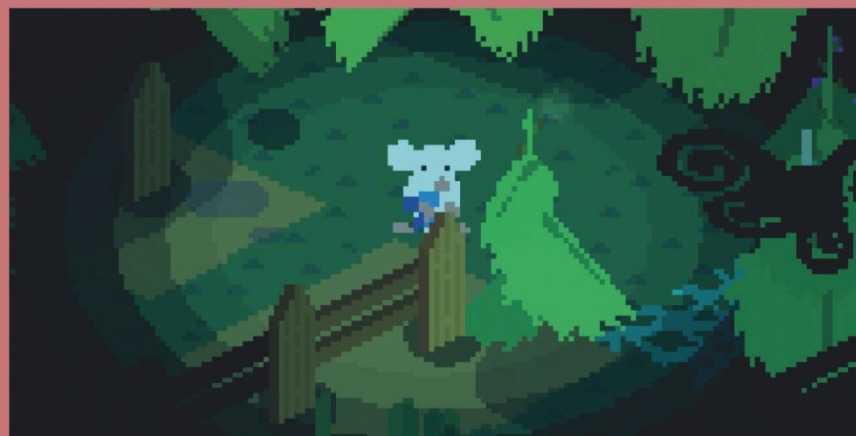


Bernband

An explore-'em-up set in a moody alien city, *Bernband* is a joy to get lost in. It's a pure walking sim, in that it's all you do. You can wander under flying cars, hit up a space nightclub, and experience a snapshot of alien life. The 2014 original is free, and a new one has been in development for a while.

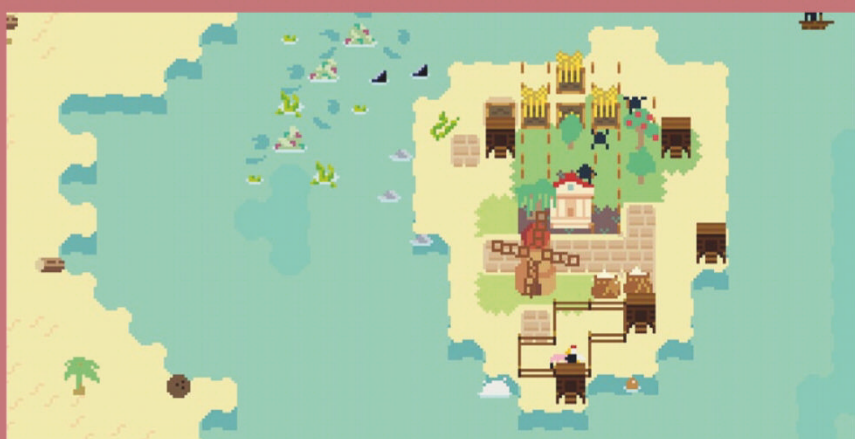
Doler

You're a mouse trapped in a spooky, swampy maze, and your goal is to find the exit somewhere in the darkness. Collect items that help you against foes and eat crumbs of food to stay alive. You can also leave little poos with notes like 'not this way' to help your fellow mouse/player in need to stay on the right path.



Soko Loco Deluxe

This miniature train tycoon game hides a surprisingly deep management sim underneath its cute pixel art aesthetic. Across 20 randomly generated levels – and many more, thanks to the scenario editor – you have to construct a railway empire, deliver cargo, and nurture little towns. It's one of Sokpop's larger games, but it still feels like a bite-sized game you can dip into for 20 minutes.



Simmiland

Nurture a civilisation with your divine powers, represented as a deck of godly cards you build before each round. Your influence is indirect – you change the landscape and add objects to the environment, and your worshippers react accordingly. You can get through the whole of human history in an afternoon.

Pupper Park

You're a bendy dog let loose for ten minutes to wrestle sticks away from other dogs, drag frogs out of the pond, and play basketball. There are bones to find, but mostly you woof about while the human who threw a ball minutes ago looks on bewildered. It's really the most authentic dog park experience you could have.



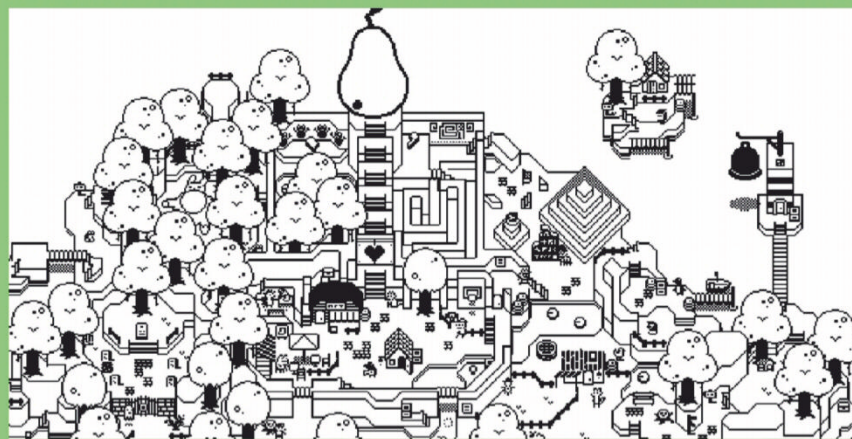


Kart Kids

Kart Kids is the anti-*Mario Kart*, with only one track, wobble-arse suspension, and a horn like a clown being punched in the nose. There are no power-ups or rainbow roads, just traffic cones and a pipe. Somewhere, a dog barks like this is all happening on a vacant suburban lot and is very illegal.

Pear Quest

A pixelly puzzler, *Pear Quest* is set on a tiny island that's dominated by a giant pear – your goal. It's a busy little place, with 20 peculiar characters bouncing around and plenty of obstacles getting in your way. There are hints of *Minit*, though it's not quite as tricky – unless you count the challenge of reading the tiny text.



PICK & MIX

Some of our favourites from Sokpop's huge back catalogue.

By Fraser Brown, Rachel Watts & Jody Macgregor

Brume

This foggy action-adventure is *Dark Souls* stripped down to the essentials: fights that kill you, a perpetually unsettling atmosphere, and enough obfuscation to make you feel just the right amount of lost and confused. To stay alive you'll need to be quick on your feet, but you can always heal yourself by sucking up spilled blood.

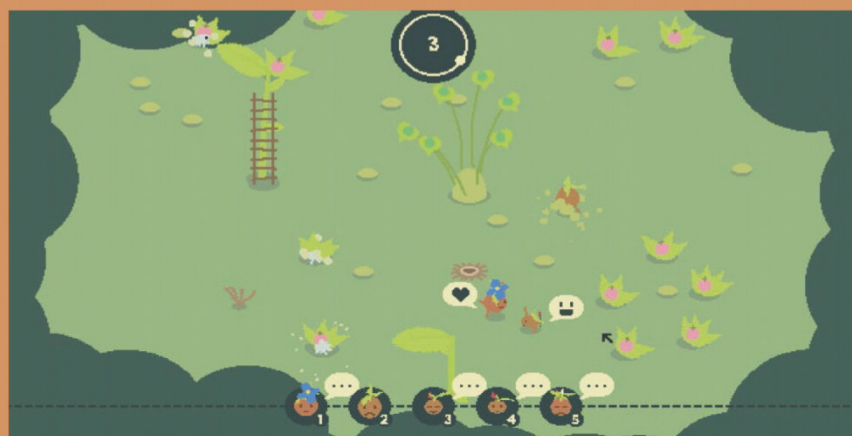


Fishy

You play as a little fish who gets flushed down the toilet and into a pond thriving with creatures and plants. You're super hungry, so you start eating small plants. As you eat more, you grow bigger, and then you can eat bigger things. Explore the pond's micro water world and maybe you can even escape.

Sprots

A *Pikmin*-inspired colony sim where you look after adorable plant-people as they develop their own little civilisation. Honestly, I would die for my sprots. They drink dewdrops out of leaves and happily chirrup away at each other and I love them. If only I could keep them all happy and alive.



SUBSCRIBE

and get a *FREE* Speedlink RGB Charging Mousepad

WORTH
£35



FEATURES

- Gaming mousepad with **wireless charging** technology – just place and charge
- 10 powerful **lighting modes** (7 static colours and 3 multi-colour modes)
- Hard **micro-texture surface** for smooth mouse gliding
- Suitable for all **mouse sensors**

speedlink

SAVE UP TO 49%

THE WORLD'S NUMBER ONE PC GAMES MAGAZINE

PC GAMER



Baldur's Gate III

Subscriber Edition
Issue 342 April 2020 £5.99
www.pcgamer.com

MAGAZINE

R

FUTURE

R

R

R

R

R

R

R

MAGAZINE

R

R

R

R

R

R

R

R



Upgrade to
include digital
for an extra
£2.50

SUBSCRIBE TO PC GAMER
TODAY FOR JUST
£30 FOR 6 MONTHS

HOW TO SUBSCRIBE

ONLINE - myfavouritemagazines.co.uk/enmate20

PLEASE USE THE FULL ADDRESS
TO CLAIM YOUR FREE GIFTS

OR CALL - 0344 848 2852 AND QUOTE
'ENMATE20'

TERMS & CONDITIONS Prices and savings are compared to buying full priced print and digital issues. You will receive 13 issues in a year. You can write to us or call us to cancel your subscription within 14 days of purchase. Payment is non-refundable after the 14 day cancellation period unless exceptional circumstances apply. Your statutory rights are not affected. Prices correct at point of print and subject to change. Full details of the Direct Debit guarantee are available upon request. UK calls will cost the same as other standard fixed line numbers (starting 01 or 02) or are included as part of any inclusive or free minutes allowances (if offered by your phone tariff). Gift is only available for new UK subscribers. Gift is subject to availability. Please allow up to 60 days for the delivery of your gift. In the event of stocks being exhausted we reserve the right to replace with items of similar value. For full terms and conditions please visit: bit.ly/magtandc. Offer ends 31/05/2020



TOTAL DOMINANCE

GT76 Titan

Windows 10 Home | Up to 9th Gen. Intel® Core™ i9 Processors | NVIDIA® GeForce RTX™ 2080 Graphics

Up your game.

WHERE TO BUY

SCAN

Scan Computers
www.scan.co.uk
0871 472 4747



Box Ltd
www.box.co.uk
0121 202 0030

Scan to
learn more



MSI.COM

*Product features and specifications may vary by model.

TRUE GAMING

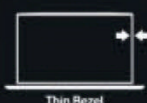


THE GAME JUST
GOT REAL



GE65 Raider

BOUNDLESS VISION, FEARLESS POWER



Cooler Boost 5

240Hz

Up to Intel® Core™ i9 processor | Windows 10 Home / Windows 10 Pro | Up to NVIDIA® GeForce RTX™ 2080

WHERE TO BUY

laptopsdirect >
The UK's Largest Laptop Specialists!



OVERCLOCKERS UK

SCAN ^S

uk.msi.com

REVIEW

HOW WE REVIEW

We review each game on its own merits, and try to match it to a reviewer who's a passionate expert in the field. The main aim of reviews is to help you make buying decisions. To this end, we're selective about what we review, and try to focus on the notable, interesting, exciting or surprising.

DOWNLOADABLE CONTENT

DLC might be new missions for a game, or it might be a single new item. If we think you want to know about it, we'll review it.

EARLY ACCESS

Any released alpha, beta, or otherwise unfinished game that you can currently pay for. For these games, we won't assign a score, but we will tell you whether they're worth your time.

THEY'RE BACK

Whenever there's a bargain or re-release of a significant game, our expert will revisit it and tell you whether it holds up today. With jokes.

OUR SCORING SYSTEM EXPLAINED

00%-09% Broken or offensively bad; absolutely no value.

Example *Leisure Suit Larry: Magna Cum Laude*

10%-19% We might be able to find one nice thing to say about it, but still not worth anyone's time or money.

Example *Gettysburg: Armored Warfare*

20%-29% Completely falls short of its goals. Very few redeeming qualities.

Examples *Family Guy: Back to the Multiverse*

30%-39% An entirely clumsy or derivative effort. There's little reason to play this game over a similar, better one.

Examples *Trials of the Blood Dragon*

40%-49% Flawed and disappointing.

Examples *Aliens: Colonial Marines*

50%-59% Mediocre. Other games probably do it better, or its unique qualities aren't executed well.

Examples *Primordia, Homefront: The Revolution*

60%-69% There's something to like here, but it can only be recommended with major caveats.

Examples *No Man's Sky, Ghost Recon: Wildlands*

70%-79% A good game that's worth playing. We like it.

Examples *Prey, NieR: Automata*

80%-89% A great game with exceptional moments or features, and touches of brilliance. We love it.

Examples *Overwatch, Night in the Woods*

90%-94% A compelling recommendation for most PC gamers. Important to PC gaming, and likely ahead of its time.

Examples *Bayonetta, Dishonored 2*

95%-96% Far and away one of the best games we've ever played. We recommend it to the entire world.

Examples *Half-Life 2, Kerbal Space Program*

97%-100% Advances the human species. Boosts the immune systems of nearby children and small animals.



The Editor's Choice award is granted in addition to the score, at the discretion of the PC Gamer staff. It represents exceptional quality or innovation.

Find out more
www.bit.ly/pcgreviews



All quiet

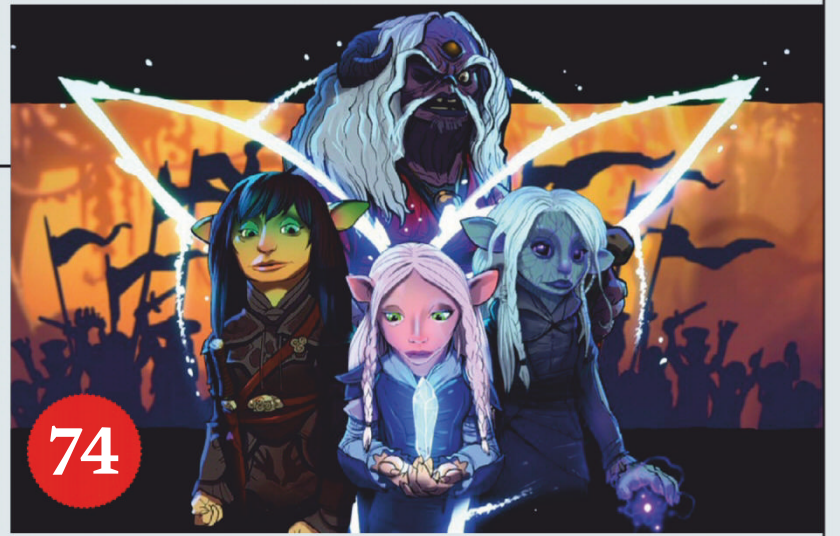
The great dry spell continues this month – big budget releases remain few and far between, with the handful that were scheduled already frantically delayed to later in the year and beyond. But as with last issue, it certainly doesn't mean there's nothing to read in the following pages. Far from it. It just means more space for the small and the strange – from an episodic indie darling, to a stark and harrowing depiction of the rise of the Nazi party, to a turn-based strategy game based on a puppet TV show, to an adventure game portrayed entirely by that bloke who played Inspector Lestrade in those Guy Ritchie Sherlock Holmes movies. PC gaming is a rich tapestry, and over the next 28 pages, we've taken a good hard look in the corners, uncovering hidden gems and the better-left-buried alike. Oh, and Riot launched a card game.

ROBIN VALENTINE
PRINT EDITOR

robin.valentine@futurenet.com

**LET US KNOW
WHAT YOU THINK**

Email us via letters@pcgamer.com with your reactions, or simply tweet us your thoughts @PCGamer



Contents

- 66** Legends of Runeterra
- 70** Kentucky Route Zero
- 72** Lair of the Clockwork God
- 74** The Dark Crystal: Age of Resistance Tactics
- 76** Warcraft III: Reforged
- 80** Might & Magic: Chess Royale
- 82** Deathtrap Dungeon
- 84** Through the Darkest of Times
- 86** Dragon Ball Z: Kakarot

88 The Pedestrian

FREE GAMES

- 90** Hive Time
- 91** Madness of the Coastal Structure
- 91** Haunted Garage

THEY'RE BACK

- 92** Hellblade: Senua's Sacrifice
- 93** Ghostbusters: The Video Game
- 93** The Blackwell Legacy
- 93** The Darkside Detective
- 93** Ghost Master

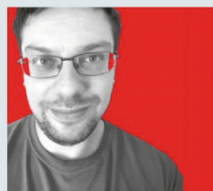
This month's deck-building, card-comboing reviewers...



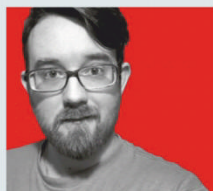
STEVEN MESSNER
Specialist in Mulligans
Currently playing Legends of Runeterra
This month Deleted his Hearthstone account for good.



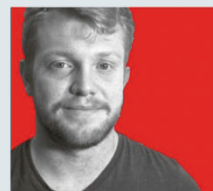
RACHEL WATTS
Specialist in Patience
Currently playing Kentucky Route Zero
This month Submitted a review seven years in the making, and still hit deadline.



LUKE KEMP
Specialist in Skipping to p130
Currently playing Deathtrap Dungeon
This month Formed an oddly one-sided relationship with British character actor Eddie Marsan.



FRASER BROWN
Specialist in Build orders
Currently playing Warcraft III: Reforged
This month The RTS genre's devoted defender suffered a crushing disappointment.



ALISTAIR JONES
Specialist in Might and mash-ups
Currently playing Might & Magic: Chess Royale
This month Defeated 99 other freelancers to earn his spot in reviews.



TOM SYKES
Specialist in Royal jelly
Currently playing Hive Time
This month Became a bee hive expert, and started selling 'gamer honey' in a local car park.



MATT ELLIOTT
Specialist in Viking mental health
Currently playing Hellblade: Senua's Sacrifice
This month Heard voices (mostly us calling him to chase him for his copy).

A DIFFERENT LEAGUE

Generous and innovative, **LEGENDS OF RUNETERRA** is a great alternative to *Hearthstone*.

By Steven Messner

I don't think I can stomach buying another booster pack after playing *Legends of Runeterra*. It's a necessary part of physical card games where cards often have real-world value, but their prevalence in digital card games is just an excuse to sell the worst kind of lootboxes. It's enough to make anyone cynical. But thanks to a generous reward system that avoids booster packs altogether, *Legends of Runeterra* is one card game that's easy to love.

You'd be forgiven for rolling your eyes at the thought of a free-to-play card game based on *League of Legends*. The card genre is full of these spin-offs. But Riot Games' take is full of clever innovations and tense duels dictated by your skill rather than how much you spend.

SLINGING CARDS

With its colourful aesthetic and good-natured charm, it's easy to mistake *Legends of Runeterra*, which entered open beta last month, for a *Hearthstone* knock-off. It takes the familiar faces of Riot's enormously popular MOBA and adapts their playstyle and abilities into a game where your primary objective is to build decks and play cards to reduce your opponent's hit points to zero. Though it walks like *Hearthstone*, *Legends of Runeterra* talks like a simpler version of Magic: The Gathering. That's to its benefit, as *Runeterra* avoids cribbing many of Magic's cumbersome rules in favour of faster, more aggressive duels.

For example: there's no 'summoning sickness'. Freshly placed creatures (called followers or champions) can attack immediately after being summoned and aren't tapped out after, letting them still block during your opponent's attack phase. It virtually guarantees that every turn both sides will take losses, making those clever plays where you bait your opponent or save a unit from dying feel extra rewarding. It's hilarious (and devastating) to cast Deny thinking I'm about to cancel my opponent's fatal spell only to have them cast Deny on my Deny. I really

enjoy the back-and-forth of *Runeterra*'s battles.

When interactions between cards get complicated, the game has a clever feature called the Oracle's Eye, which shows you what the board will look like after a certain attack phase or spell has resolved. Not having to double-check your math or worry that a certain chain of abilities and spells plays will play out a certain way is a godsend.

Some genius twists to combat further distinguish *Runeterra* from the pack. Most card games, for example, punish you for not spending all your mana in a given turn. In *Legends of Runeterra*, however, up to three points of my unspent mana are

It keeps *Runeterra* feeling unpredictable and dynamic

NEED TO KNOW

WHAT IS IT?
A generous free-to-play card game based on *League of Legends*

EXPECT TO PAY
Free

DEVELOPER
Riot Games

PUBLISHER
In-house

REVIEWED ON
GTX 1080Ti, Intel i7-8086K, 16GB RAM

MULTIPLAYER
Yes
LINK
playruneterra.com

preserved for the next round to be used exclusively on spells.

This change feels as substantial as *The Elder Scrolls: Legends* having two separate playing boards. Being able to play cards on a turn where it should be impossible to play them because I stored mana earlier is one obvious benefit, but I also like that I'm not as harshly punished by a bad opening hand. It keeps *Legends of Runeterra* feeling unpredictable and dynamic, instead of one player snowballing the match due to bad luck.

MOST VALUABLE PLAYERS

By far the most unique part of *Legends of Runeterra*'s combat is the champions. Each of the initial set of 24 is modelled after a character in *League of Legends*, adapting their playstyle to fit inside the rules of a card game. Braum, for example, regenerates health and gets to choose which enemy unit blocks him, making him a great tank.

Each one also levels up after meeting certain conditions, often gaining more power and new abilities that make them formidable.

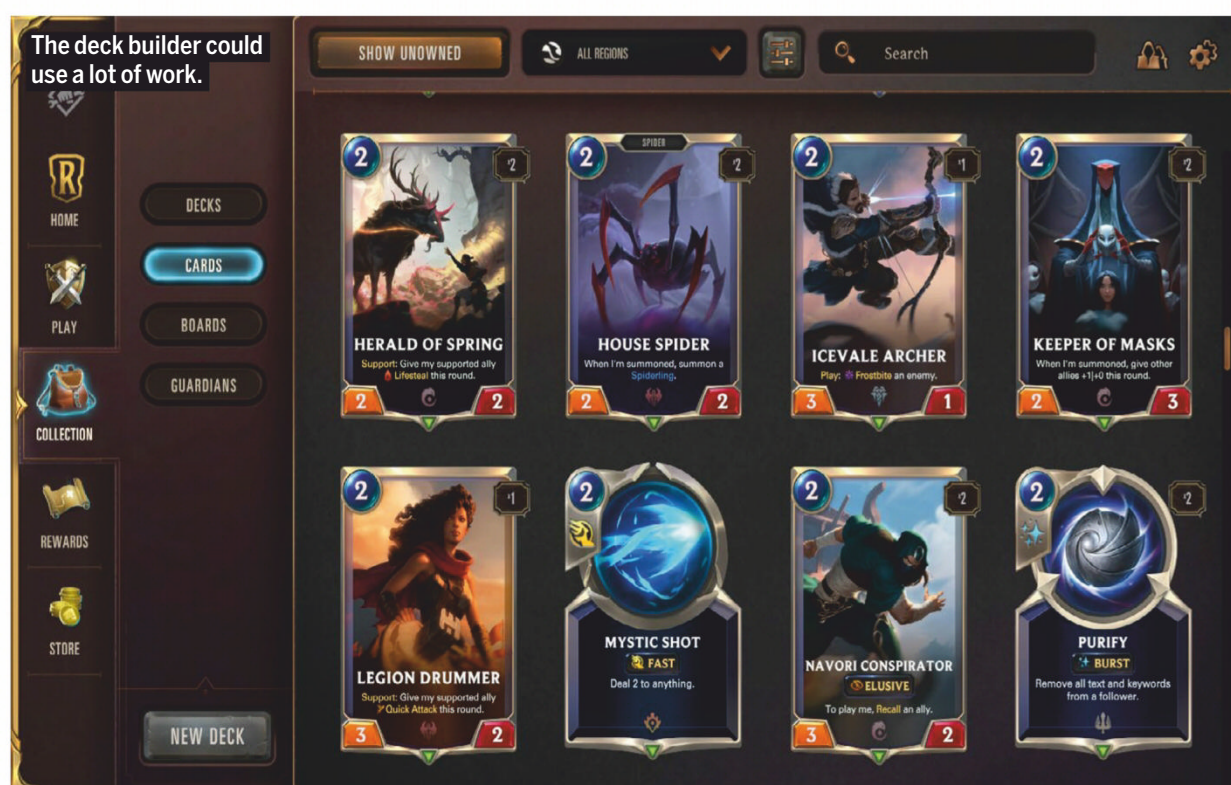
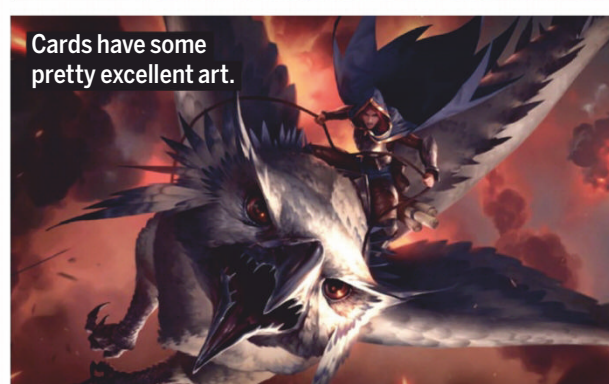
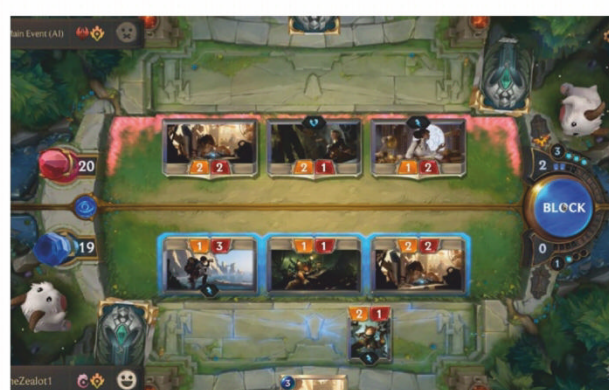
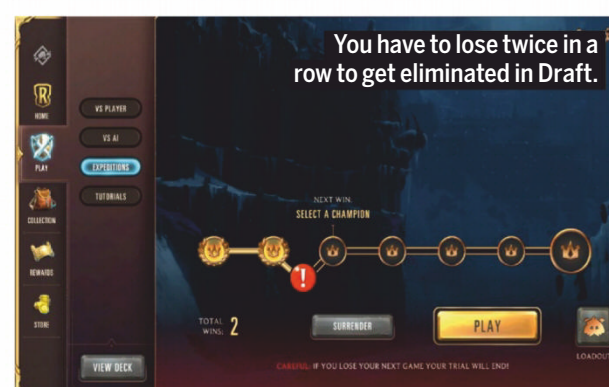
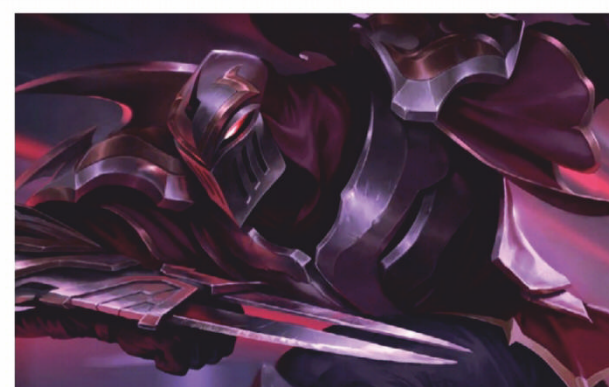
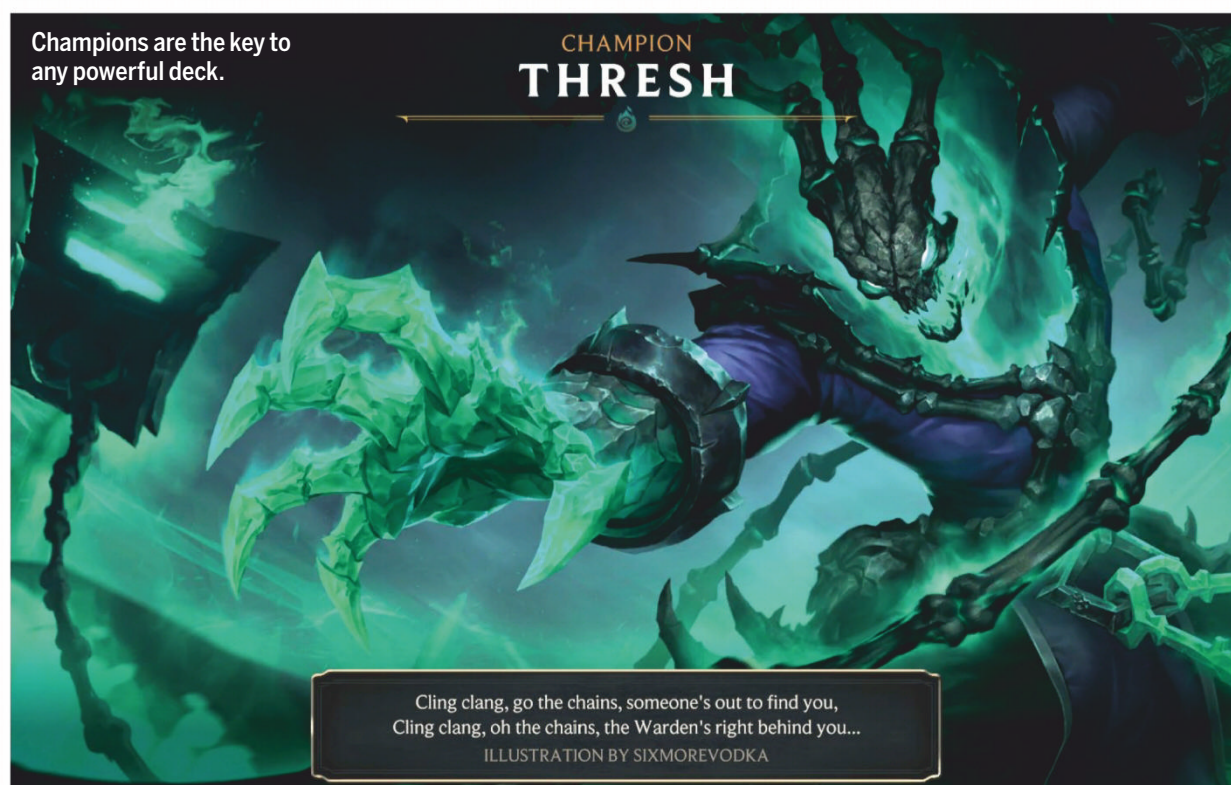
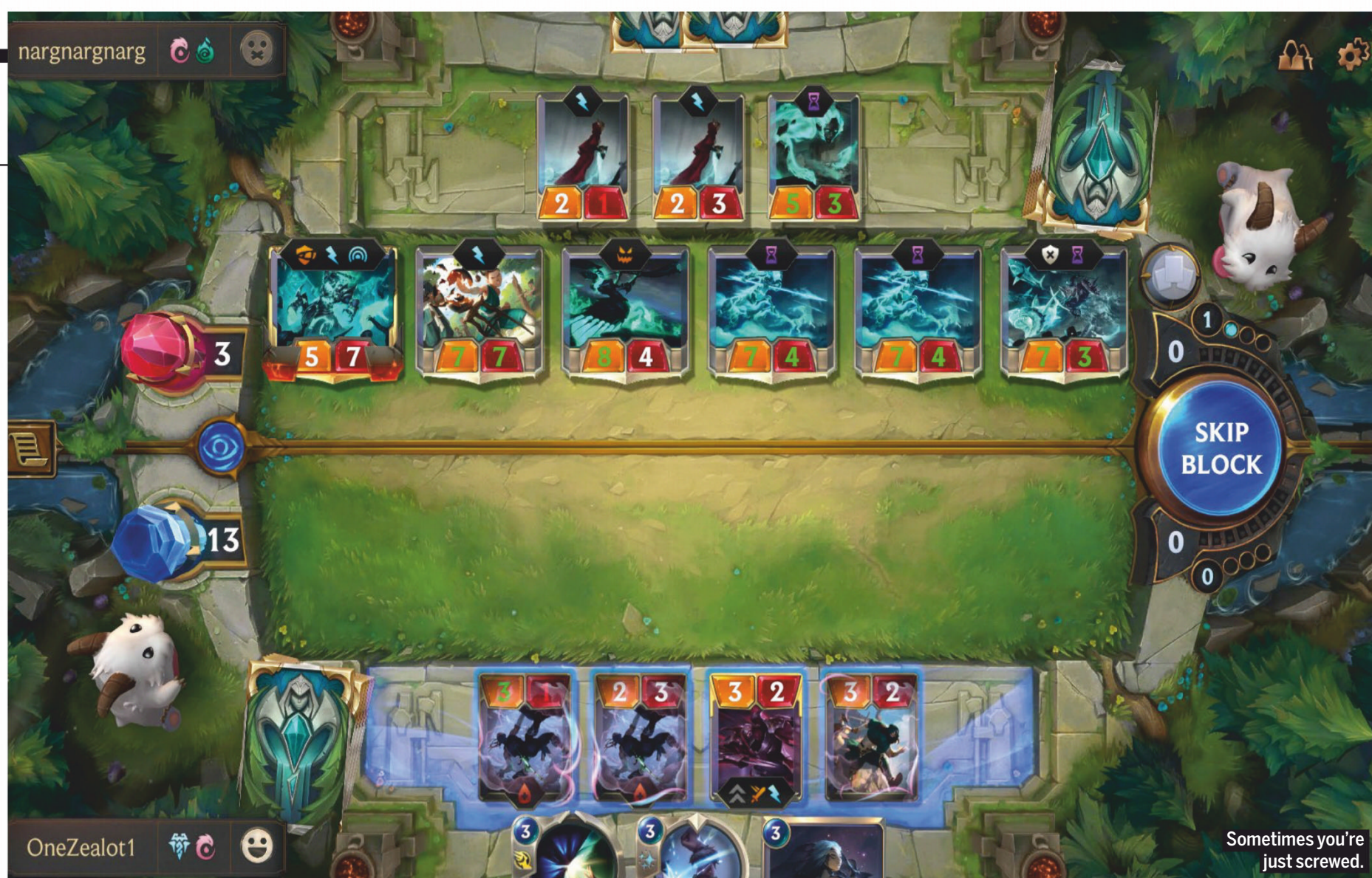
When Zed attacks, for example, he creates a shadow clone of himself with the same attack and health that is also attacking. If he or his clone manage to directly hit an opponent twice, Zed levels up so that his shadow clone now also shares any of Zed's special keyword abilities, such as his Quick Attack.

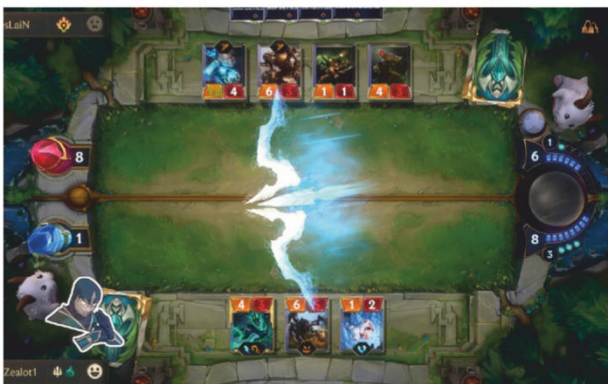
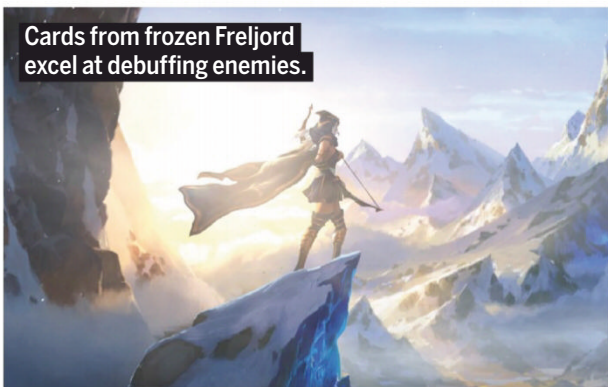
Triggering these special abilities is a ton of fun, especially when you fulfil the requirements to level up your champion at the same time. Each one has their own level-up animation that really drives home the idea of these cards transforming into something much more dangerous and powerful. When Darius levels up, for example, he uses his iconic axe to hook the camera and pull it in close. Seeing these flashy animations repeatedly play out again and again does get a little tiresome, but I love how much flair and tension they add to each round.

THE KEYWORD MAKES THE CARD

A run-down of unit abilities and their effects

-  **BARRIER**
Negates damage once this round.
-  **CHALLENGER**
When attacking, choose your blocker.
-  **DOUBLE ATTACK**
Strike twice, with the first hit happening before usual combat.
-  **ELUSIVE**
Can only be blocked by other Elusive units.
-  **EPHEMERAL**
Is destroyed after attacking or at the end of the round.
-  **LAST BREATH**
Triggers an effect after dying.
-  **TOUGH**
Reduce incoming damage by one.





» Even if champions are more powerful than regular followers, they're far from some kind of game-winning trump card. Knowing when to play them and how to keep them alive is key, and it's especially rewarding when you pull it off because you know your opponent is doing everything they can to kill them. With them in play, *Runeterra* feels like a true battle of wits, each player trying to outsmart the other. It's satisfying as hell to trick an enemy into a position that levels up your champion or destroys theirs.

They also add welcome flavour to well-understood deck types. A control deck loaded with spells that stun and force cards back into your opponent's hand becomes far more sinister when paired with Yasuo, who deals damage to stunned or recalled units. If you pull that trick off six times and level him up, he'll start killing stunned units outright.

Even if you're not a big fan of *League of Legends*, its charming cast of anarchist nutjobs, stoic samurai, and horrifying spectres bring so much life and humour to each battle. I love hearing Jinx laughing maniacally when I use one of her related spells to destroy an enemy unit, or seeing my adorable Lonely Poros transform when I summon another Poro unit. The card art is often so pretty that I frequently sneak a peek using the inspect button during my opponent's turn.

But as nice as the art is, the layout of the main menu and deck builder could use a lot of work. Information is often poorly laid out, forcing me to navigate to menus just to get information I need when trying to build a deck. It's beyond annoying that I have to go to the store window just to see what crafting resources I have, or that there are no better options for sorting and organising my collection of cards.

PACK IT IN

Though its combat is a lot of fun, where *Legends of Runeterra* sets a new standard is in its economy and rewards. Booster packs are gone entirely – good fuckin' riddance – and replaced with a layering of weekly chests and several free battle passes that constantly dole out crafting materials, cards, and Wildcards, which can be redeemed for any card with a

**I've already
built decks that
feel powerful
and highly
competitive**

powerful and highly competitive instead of just cobbling together whatever I can.

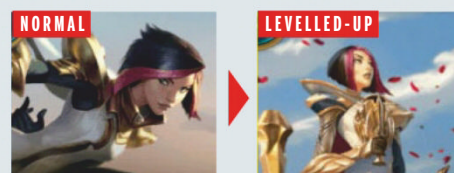
Earning the maximum amount of possible rewards each week isn't a brutal grind either. Playing a few

corresponding rarity. Being able to pick which cards I want to add to my collection is refreshing. Though rarer Wildcards come infrequently, I've already built a few decks that feel

FINAL FORM

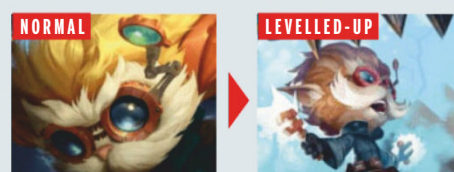
Champions become much stronger upon levelling up. Here's a few examples

FIORA



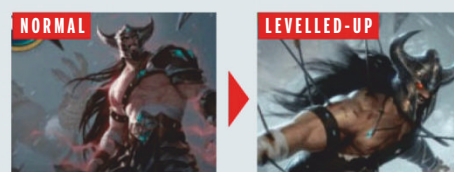
This tricky champion automatically wins the game for you if you can kill enough enemies with her. The key is keeping her alive long enough to do it.

HEIMERDINGER



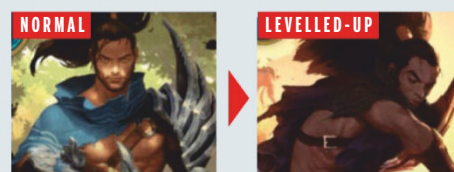
Nice and simple: you cast spells, he gives you mech minions. Cast enough spells and he levels up, making all his mechs stronger.

TRYNDAMERE



Kill this champion, and he comes back angrier. His newly beefed up stats and abilities allow you to rush down your opponent's Nexus.

YASUO



Damages any enemy you stun. Do it enough and he levels up, attacking all stunned enemies with his Quick Attack before they can retaliate.

hours every day, completing quests and draft modes puts me close to capping my rewards, but I could easily play much less and still reap some rewards. Hardcore players might lament running out of things to do if they invest too much time, but I'm happy that a competitive game from a major publisher, for once, isn't trying to take over my life.

Since launch, I've played in ranked mode almost exclusively. Though I've lost more than I care to admit, I'm motivated to keep playing because fights almost always feel fair. It's one of the less obvious benefits of not being overtly pay-to-win like pretty much any other card game. You can still buy Wildcards, but there's a weekly cap on them, so even hardcore spenders won't outpace us filthy casuals.

It's fantastic. Duels feel like a true test of strategy (and a little luck) instead of who is playing the most expensive meta deck.

Even *Legends of Runeterra*'s draft mode, called Expeditions, is pleasingly generous. Like most draft modes, in order to play you have to spend either a few dollars, spend a draft token you earn from various tasks, or surrender a large sum of crafting resources. But in *Runeterra* you can play twice per entry, building a new deck each time and then using whichever run was more successful to determine your final rewards. Even if you do terribly, you'll still receive a champion card equal to the value of your admission, but winning all of the seven games showered me with several very rare cards and so many crafting resources that I was immediately able to go back in again for another run.

It's exciting to play a card game with so few barriers and so little segregation between its players. And because I don't feel like a filthy, second-class casual for not buying cards, *Legends of Runeterra* has quickly wormed its way into my daily routine. Though its deck-building menus could use a lot of work, this is a welcome alternative in a genre where how competitive you are is often related directly to how much money you spend. ■

PC GAMER

VERDICT

Several clever innovations and a generous economy make *Legends of Runeterra* easy to love.

85

ROAD TRIPPIN'

KENTUCKY ROUTE ZERO's surreal adventure follows the drifters on America's highways. *By Rachel Watts*

It's taken seven years for developer Cardboard Computer to release all five episodes of its otherworldly adventure. It was first Kickstarted in 2011. Where games like *The Walking Dead* or *Life is Strange* will drop episodes at most months apart, *Kentucky Route Zero* irregularly wandered into our lives with two hours of surreal, evocative story before disappearing once again – slinking back into the aether until it was time for the next episode.

It's strange having to review a game that I've been playing for over seven years. In some ways it's a weirdly nostalgic experience, a reminder that I'm a completely different person from when I started playing back in 2013. While I think many will have the same realisation, *Kentucky Route Zero's* message about the struggles of rural America and the working class remain as relevant today as they were then.

The story follows Conway, a truck driver and self-described drifter who delivers antiques. After the small store he works for shuts down, we follow his delivery to 5 Dogwood Drive, a place that no one seems to have heard of, but apparently lies somewhere along an ethereal highway called the Zero. As Conway searches for his destination, he's slowly joined by a number of fellow wanderers, and the group travels across Kentucky together, looking for a place that may or may not exist.

Their road trip is far from just tyre on tarmac. *KRZ* takes you through a number of surreal pit stops throughout its five acts as you point-and-click your way across different scenes. Rather than puzzles, the focus here is on weaving an evocative atmosphere and memorable moments. On *KRZ's* ethereal highway, a building is never 'just a building' – there's always a little poetic twist, such as an old cathedral that's

been converted into an office building, or an empty gas station that's shaped like a horse.

ROAD TO NOWHERE

As Conway's group grows, each character fades in and out of the foreground, and you'll play as each of them when they take centre stage. As you chat with NPCs you're given choices that reflect a character's inner thoughts and, as you decide which of these will be expressed, it's like you're slowly moulding the

KRZ takes you through a number of surreal pit stops

NEED TO KNOW

WHAT IS IT?
A point-and-click adventure game of Americana and weirdness

EXPECT TO PAY
£19

DEVELOPER
Cardboard Computer

PUBLISHER
Annapurna Interactive

REVIEWED ON
Intel Core i3-8350K
CPU, 8GB RAM, GeForce GTX 1060

MULTIPLAYER
No
LINK
kentuckyroutezero.com

character. You choose if they're completely over a lost lover, or still shaken by an event from their past. While the road that *KRZ* takes is linear, it's these decisions that make the characters feel like your creations, their stories becoming yours.

The game is mainly an anthology of these small stories and you'll hear many of them through descriptions, ghost stories, lore, and mythos. They all join together to conjure up a bleak portrait of rural America, of people struggling to survive in times of economic hardship.

There were moments when I got lost in *KRZ's* stories. A character would mention a name that I felt like I'd heard before, or a place that rang a bell at the back of my mind, like remembering a dream after you just woke up. Following all the narrative threads can be a bit disorienting, but never frustrating. I never felt that *KRZ* ever wanted anything from me – more that I was just a casual observer in its ethereal world.

This ties in with the group that joins Conway on his search. They're drifters, pilgrims, loners, and wanderers. People with nowhere to go, no home, no boundaries. This vagabond lifestyle almost sounds romantic, but in *KRZ* these unlikely heroes reveal ugly truths about rural America. Stories of unpayable loans, debts, and people being forced into difficult financial situations through no fault of their own.

But *KRZ* isn't all melancholy. The last chapter is warm, hopeful, and feels good regardless of whether it took you seven years or seven hours to get there. Its storytelling is slow but purposeful, and blends fiction, history, and the supernatural to conjure up an absorbing portrait of the US and its inhabitants. ■

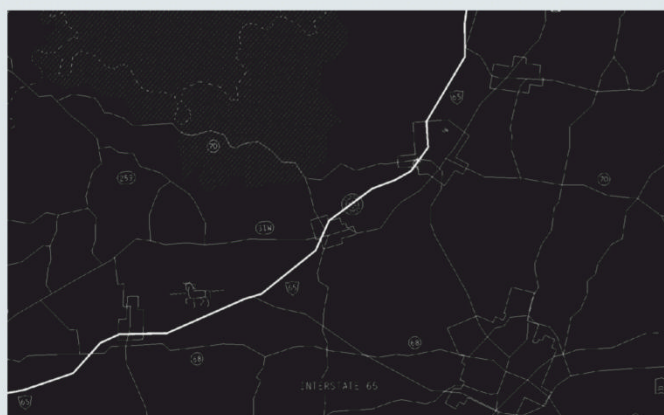
ZERO CLUE *Some tips if you get lost on Kentucky's ethereal highways*

1 RETRACE YOUR STEPS

The highways morph, so go back the way you came and you might find yourself somewhere else.

2 LISTEN TO RADIO STATIC

If you listen closely, you'll be able to hear a ghostly voice in the static with helpful directions.



3 FEEL WHERE YOU WANT TO GO

If you put your complete trust into the road, the road will certainly reward your loyalty.

4 LOOK OUT FOR GIANT BIRDS

They might not take you where you want to go but they will take you somewhere. That's good!

PC GAMER VERDICT

A compelling story about rural America that is both surreal and thoughtful, if a little disorienting at times.

87

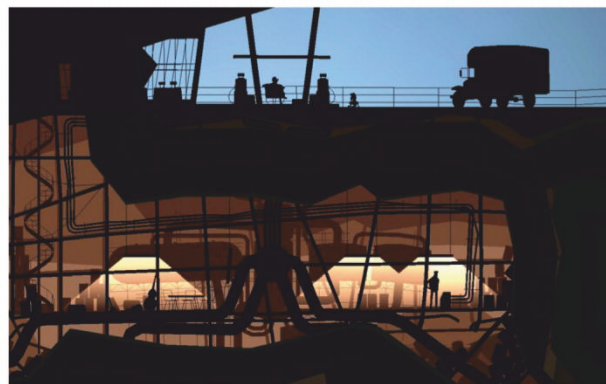
KRZ's last chapter adds a splash of colour to its dark world.



Equis Oils is the place where your journey to Route Zero begins.



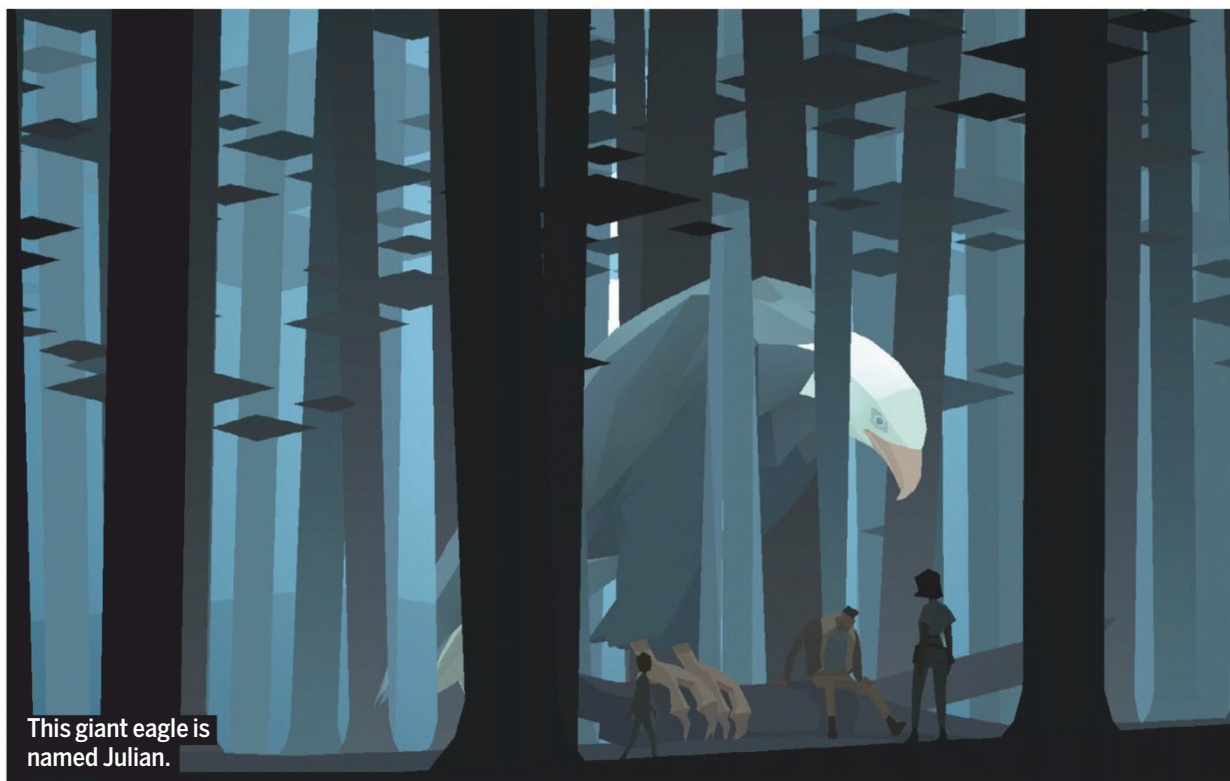
The game's strange locations are endlessly inventive.



Congratulations, you now have a skeleton leg and owe thousands in debt.



This giant eagle is named Julian.



HYBRID HEAVEN

The genre-hopping **LAIR OF THE CLOCKWORK GOD** could be 2020's funniest game. *By Chris Schilling*

Genuinely funny games are a rarity. So without overlooking the ingenuity of a game that fuses point-and-click adventures with platform-puzzlers, the highest praise I can give *Lair of the Clockwork God* is that it made me laugh from start to finish. Its central pair – alter-egos of creator Dan Marshall and co-writer Ben Ward – would hate the phrase ‘interactive comedy’, so I’ll simply say that this is a gag delivery device with an outstanding hit rate.

It opens in a Peruvian jungle, immediately establishing its central hook. While Ben is dedicated to point-and-click conventions, Dan has reinvented himself as an indie platformer hero on an emotional quest. If you haven’t played the earlier Ben and Dan games, you could be forgiven for thinking you were in for some self-consciously edgy humour with a side of clever-clever postmodernism. Yet it takes great care to position its leads as the butt of most jokes.

When I say ‘emotional quest’, that’s exactly what it becomes. Ben and Dan wind up in London, where the capital has taken an apocalyptic turn. Here they discover an AI that puts them through a series of experiments, harvesting their response to emotional stimuli to better understand humankind. What follows is an imaginative journey involving plenty of character-swapping fun, as you make use of their disparate skillsets. Dan can

reach places his counterpart can’t, while Ben can pick up and combine objects to help his friend, creating power-ups such as a double-jump.

There are minor control issues with both. Ben is blighted by an interface that feels slightly fiddly however you play. And while Dan’s obstacle courses are creatively designed, he’s hardly *Celeste*’s Madeline in precision and responsiveness.

Though it avoids the irritating pixel-hunts of many vintage point-and-clicks, the platforming creates a few sticking points. Giving Ben a piggyback speeds up your movement, but it’s possible to pass by environmental features or objects. You’re not always confined to a small locality, nor will you always be aware which character you should be controlling. Such moments are rare and dialogue tends to subtly seed hints – though on a few occasions you’ll find yourself trying out every possible combination of objects (not that your inventory ever becomes unmanageable).

Its sense of humour might occasionally be too caustic for some

NEED TO KNOW

WHAT IS IT?
Platformer meets point-and-click in the third (and final?) Ben and Dan game

EXPECT TO PAY
£15.50

DEVELOPER
Size Five Games

PUBLISHER
Size Five Games

REVIEWED ON
Intel Core i3-8350K CPU, 8GB RAM, GeForce GTX 1060

MULTIPLAYER
No

LINK
sizefivegames.com

Somehow, it hardly matters. Dan’s glee during the platforming set-pieces is infectious – just witness his response to his discovery of ‘left gravity’. And any minor annoyances are quickly forgotten when you’re never far from a pun, a one-liner, or a creative sight gag.

THROWING SHADE

Its sense of humour might occasionally be too caustic for some, while others might be uneasy at the pot-shots it takes at other games. Yet the tone is usually either cheeky, affectionate, or both. As often as it takes the piss (sometimes literally), it celebrates the kind of games it’s joking about. It doesn’t stoop to the usual type of videogame satire, where a game does the very thing it complains about, outside of one sequence that deliberately riffs on that idea, where the payoff is the reveal of the emotion being tested.

Elsewhere, there’s a frankly brilliant section that interrogates the process of respawning. One chapter, where the two need to impress a social media feed of youngsters to get into a club, risks devolving into condescending references to young people and their weird lingo, but defies expectations with a self-aware twist. And one elaborately silly joke involves a punchline that’s delivered piecemeal within the opening moments of a visual novel, *Devil’s Kiss*, that’s bundled with the game.

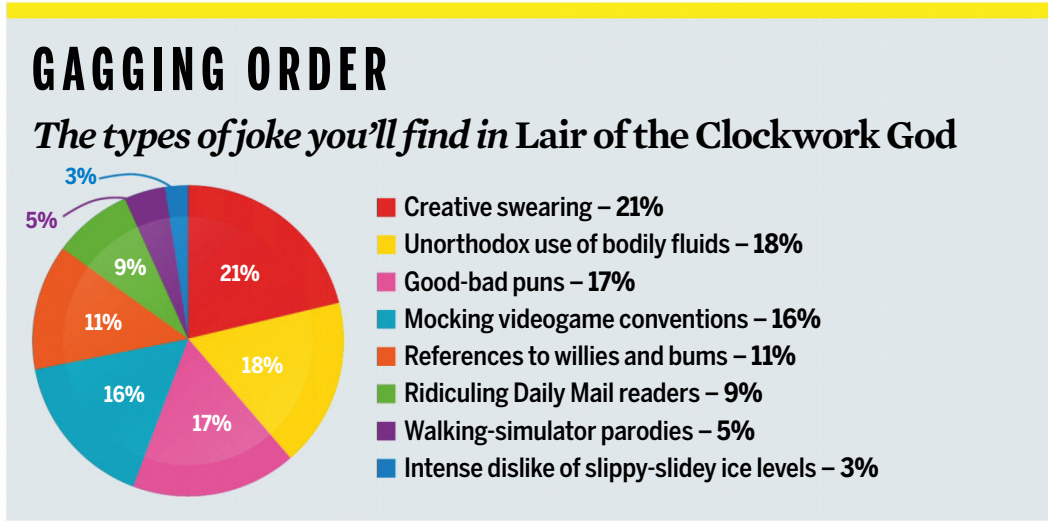
Surprises are scattered liberally throughout. Some deliberate misinformation prompts an ingenious mechanical twist, and you’ll mow down waves of piñata minions with a screen-shaking gun. Yes, a few gags fall wide of the mark. But Size Five’s ballsiest adventure to date is the kind of game you’ll be quoting for years. ■

PC GAMER

VERDICT

“Not every conspiracy has to be the fucking Templars.” If that made you smile, buy with confidence.

83

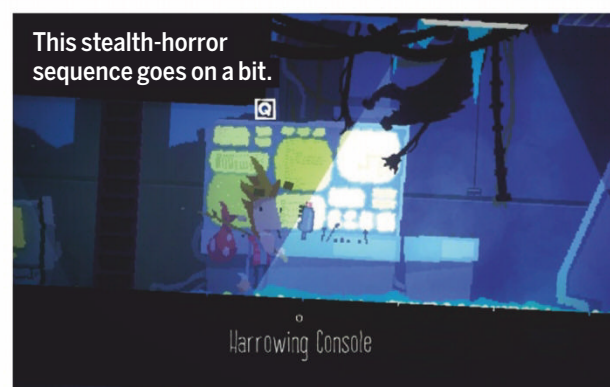




Several puzzles involve using one character to open the way for the other.



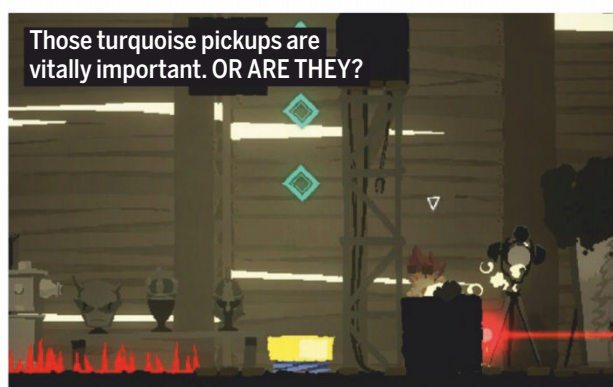
Bonus visual novel *Devil's Kiss* is well worth playing to its conclusion.



This stealth-horror sequence goes on a bit.



> WARNING: this system has been deactivated as of 05/11/1992 due to a catastrophic string-checking error.
> NO UNAUTHORIZED ACCESS.



Those turquoise pickups are vitally important. OR ARE THEY?



I want things to go back to how they were!



A perfect example of the game's Wildean wit.

> BUMS BUMS BUMS
BUMS_

THE STORY SO THRA

THE DARK CRYSTAL: AGE OF RESISTANCE TACTICS is a pleasant surprise. *By Robin Valentine*

I love strategy games. I love The Dark Crystal. But heading into this adaptation of the Netflix TV series, I was pretty sceptical of the idea of squishing the two together. It's a pleasure to report that while *Age of Resistance: Tactics* never fully justifies the combo, it's a far richer and more substantial game than you might expect.

For those unfamiliar, the show (itself spun out from a 1982 cult movie) takes place in a strange fantasy world, represented primarily through puppetry and animatronics, where the peaceful Gelflings are oppressed by the parasitic Skeksis. The game loosely retells this story, with a few new diversions, though in a way jumbled and fleeting enough that anyone who hasn't watched the series will be utterly lost.

With too little explanation for the uninitiated, and not enough new elements to please fans looking for significant additions to the canon, the storytelling falls flat. But where the game shines is in its action.

As you progress across the campaign map, you put together parties of heroes – from a stuffed roster of characters from the show and new additions – to fight in turn-based battles. Thanks to clear presentation and a generous undo button, the strategy is pleasingly

accessible, while still boasting plenty of depth to sustain its surprisingly chunky 20-hour runtime.

There are hints of *Into the Breach* in its mission design (calm down, just hints), with careful positioning and manoeuvring key to success.

Attacking from above your opponent confers an attack bonus, encouraging you to fight for the high ground. Environmental hazards, such as pits of snapping Gobbles, damage anyone who stops on top of them – movement and pushing abilities allow

you to line up foes and shove them into these dangers.

A JRPG-esque 'jobs' system allows heroes to switch class at will

FIZZIGIG ECONOMY

Stages get cleverer and more elaborate as you go, showing off a real flair for strategy design. On coastal islands you have to keep an eye on the tide, which may rise to drown hapless fighters, or lower to expose new routes; in the dungeons of the Skeksis, your party is at one point

NEED TO KNOW

WHAT IS IT?
A turn-based strategy adaptation of the Netflix TV show

EXPECT TO PAY
£15.50

DEVELOPER
BonusXP

PUBLISHER
En Masse Entertainment

REVIEWED ON
Intel i5-3570K, Nvidia GTX 970, 16GB RAM

MULTIPLAYER
No

LINK
bit.ly/20swL9e

divided along two routes, each having to find and hit levers that open doors for the other; and in the Grottan caves, a stage challenges you to line up boulders and whack them into burrows to stem a tide of beasts, like a giant game of Gelfling snooker.

Helping you adapt to each challenge is surprisingly extensive customisation for your characters. A JRPG-esque 'jobs' system allows heroes to switch class at will, levelling up each discipline individually. Abilities gained in one can be used as secondary powers in another, allowing you to create your own hybrid classes.

For a fan of the show, there's a kind of toybox fun to collecting the show's heroes and making them battle. But they do kind of *feel* like toys, lacking the life of their on-screen puppet counterparts. Partly that's down to the limitations of the medium, but it's also a symptom of a clearly humble budget.

Equally, while the strategy combat is good fun throughout, its relationship to the source material is variable to say the least. A fight against the Chamberlain evokes the show nicely, as he uses honeyed words to confuse your heroes. But representing Brea's search for knowledge as a skirmish against a squad of librarians is awkward at best. Enjoyable as the battles can be, it was rare for an hour to go by without something in the game reminding me that this isn't the ideal genre for a Dark Crystal adaptation.

It's not going to rock anyone's world, but for a cheap TV tie-in it's a lot more engaging than it has any right to be, serving as a pleasant opportunity for series fans to spend a few more hours in the company of their favourite Gelflings. ■

PC GAMER VERDICT

This Netflix tie-in is an awkward adaptation, but it still makes for a surprisingly smart strategy game.

75

REBEL ALLIANCE

The party that saw me through to the endgame



RIAN
Job: Paladin/Grave Dancer
My mobile heavy hitter, able to leap to wherever he's needed most.



DEET
Job: Bramble Sage/Mender
A magical powerhouse, chucking out heals and fireballs.



NAIA
Job: Stone Warden/Soldier
A reliable tank who hits hard and gets faster the more damage she takes.



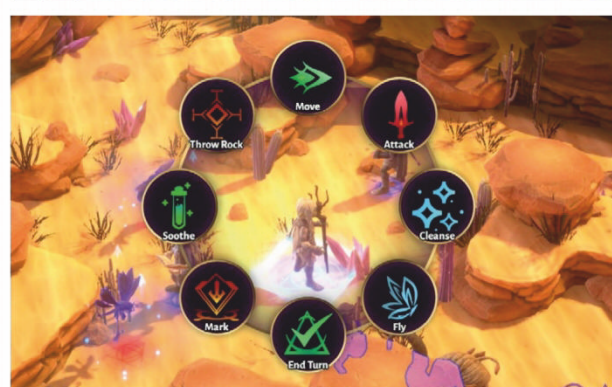
BREA
Job: Song Teller/Scout
Dispenses buffs to her friends and stuns to her enemies.



POMBO
Job: Musician/Potion Master
Honestly, I just keep this guy around because his name makes me laugh.



The smattering of cutscenes play out as basic 2D motion comics.



RE-BORED

The classic RTS is back, but the **WARCRAFT III: REFORGED** remaster doesn't live up to its promise. *By Fraser Brown*

This reborn RTS spins a yarn about a host of factions fighting over the course of several campaigns, and then again in multiplayer battles and skirmishes. But there's also another conflict: the one between 2002 and 2020. There's the classic original game with its elaborate faction design and clever RPG flourishes, and then there's the 'Reforged' part. It's an attempt to bring the game into the modern age, but one that feels half-hearted. This is not the remaster that *Warcraft III* deserves.

Blizzard hasn't done a great job of communicating what *Warcraft III: Reforged* actually is. Initially, it sat somewhere between remaster and full-on remake. Not only was Blizzard going to add heaps of new art and modern graphics wizardry, it was going to go over the campaigns again, improving them, tinkering with the pace, and even bringing the lore and story in line with *World of Warcraft*. There were going to be new cutscenes, a new UI, and more. With the exception of the graphics improvements, Blizzard has walked most of these changes back.

For the purists, this might be good news. It's still the *Warcraft III* you remember, but it looks a bit nicer. Impressively, two decades hasn't dulled it at all. It helps that real-time strategy hasn't made many leaps since 2002. While it features most of the traditional elements of the genre,

like base building, resource gathering, and maps shrouded in a fog of war, it's really driven by its heroes. These super-charged units are fancy specialists with powerful abilities that

can be upgraded as they level up and then augmented with items purchased in shops or dropped by enemies. They're RPG characters, essentially, around which you build a small army.

Since you can only select 12 units at a time, it's all about micro-managing small groups. Not needing to worry about 100 faceless warriors, you've got more time to pop off healing spells, set up ambushes, and build a specialised squad. Each of the factions – Horde, Alliance, Scourge, and Night Elves – has a roster of unique and often exotic units that can also be upgraded. They're not as powerful as the heroes, but even the most basic units have tricks up their sleeves.

It's still the Warcraft III you remember, but it looks a bit nicer

NEED TO KNOW

WHAT IS IT?
A remaster of the classic RTS

EXPECT TO PAY
£25

DEVELOPER
Blizzard Entertainment

PUBLISHER
Blizzard Entertainment

REVIEWED ON
GTX 1080Ti, Intel i7-8086K, 16GB RAM

MULTIPLAYER
Yes

LINK
playwarcraft3.com

REBUILDING

I've once again fallen down the rabbit hole of obsessing over build orders, taking hastily-written notes and – something I didn't do in 2002 – watching lots of talented players stream their experiments and battles. I want to get good again. I need to do my orc pals proud. With so many factions, monsters, and troops, there are countless ways to build your forces, and that's before you even throw in mercenaries, which you can recruit from neutral buildings, usually after a fight. If you've already got a build order that's tried and tested, you can hop right into *Reforged* with it and not miss a beat.

These things don't need changing. The core of *Warcraft III* is as gripping as it's always been. The most noticeable difference between the original and *Reforged* is, of course, the art and graphics. Unit models and buildings in particular have benefited from the upgrade. Your warriors are now considerably more detailed and have an aesthetic that mirrors the style of later Blizzard games like *World of Warcraft* and *Heroes of the Storm*, though not completely. *Reforged* still has its own look.

Character animations, on the other hand, haven't been given the same attention, but what really makes the units look a bit odd is their low frame rate. Yes, you can enjoy >>

HISTORY LESSON From Warcraft to WoW

FIRST WAR

The orcs arrive in Azeroth and promptly start killing humans. They win.

INVASION OF DRAENOR

The Alliance enters the Dark Portal and invades the orc homeworld of Draenor.

HORDE ON HOLIDAY

Thrall gathers the remaining orcs on Azeroth and moves them from Lordaeron to Kalimdor.

EDGELORD ARTHAS

He fails, instead becoming a bit of an arsehole and picking up a cursed sword. Arthas then joins the Scourge.

BIG BREAKUP

The Alliance and Horde split up, while the high elves, now known as the blood elves, leave the Alliance and go bad.

WORLD OF WARCRAFT

The Horde and Alliance return to their persistent state of war, while Arthas plots away in Northrend.

SECOND WAR

The humans form an alliance of other races to avenge the destruction of their homeland.

LICH KING MK1

Naughty orc Ner'zhul is transformed into the first Lich King by the Burning Legion. This is bad news.

THE SCOURGE ARRIVES

The Burning Legion creates a plague of undeath. Prince Arthas tries to stop them.

KICKING OFF ON KALIMDOR

The Horde and Alliance team up to kick the Burning Legion out of Azeroth for good.

LICH KING MK2

Sylvannus forges a kingdom for the Forsaken, while Arthas becomes the Lich King.



The campaigns remain the best part of the game.



Murlocs remain a force to be reckoned with.



Even with just a handful of units, you can do a lot of damage.



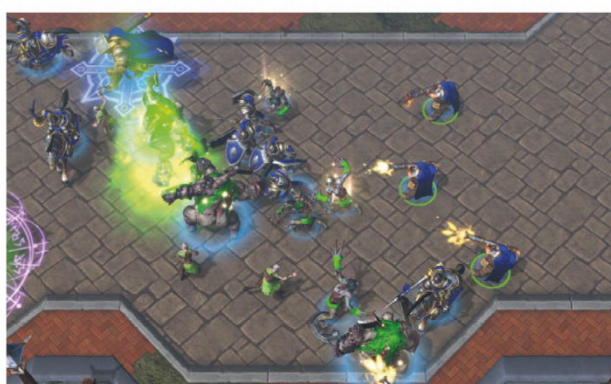
The new character models are, across the board, fantastic.



The Dark Portal is so much cuter than its imposing WoW counterpart.



Some of the visual changes are welcome, others less so.



Every faction has unique units, heroes, and mechanics.

» *Warcraft III* at 200fps, but if you're looking at your army, it looks more like stop-motion. In cutscenes, they're a lot less animated than previously advertised, too. In 2018, Blizzard showed off an in-game cutscene from the Culling of Stratholme mission, featuring lots of close ups and characters gesturing and arguing, but little of that is present now. The cinematic cutscenes that bookend the campaigns, meanwhile, are the exact same ones from the original game. They've actually aged really well, but they're not nearly at the standard that Blizzard has since become known for.

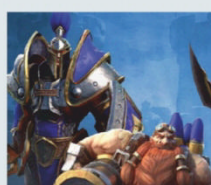
The developer's also played it a bit safe with the maps. Some locations, like Dalaran and Stratholme, have seen a more dramatic update, but for the most part they stick very close to the originals. Their design largely remains excellent, whether they have been built with story and pace in mind, or just a big free-for-all online fight. Veteran players will notice some tweaks, like camps, mines and other things being moved around, but meaningful changes are few and far between. Aesthetically, though, they are pretty unappealing. Despite the higher quality textures, it feels like playing *WoW Classic* with modern character models. The juxtaposition just makes the maps look more dated.

CRAFT WORK

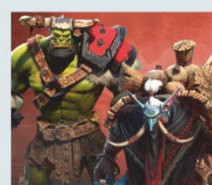
All the *Warcraft III* campaigns and expansions are available, but after nearly 20 years I'd really like to see what Blizzard can still do with its fantasy RTS. The dialogue and voice acting can be uneven, but this is still the best RTS story out there – sorry, *StarCraft* fans. It's also one I already know by heart. With the recent *Age of Empires 2: Definitive Edition*, Microsoft added three new campaigns that actually tried new things, with much success. With that release still fresh in my mind, Blizzard's work on *Reforged* feels a lot more conservative. Still, replaying Arthas' fall from grace, devouring Azeroth as the Scourge, and uniting the factions to fight Archimonde is a real treat. While the changes to the campaigns are few and far between, this is the best they've ever been.

Even if you're in the camp who wants everything apart from the graphics to stay the same, you might still be disappointed by other omissions. The massive UI and text that covers the screen are two big

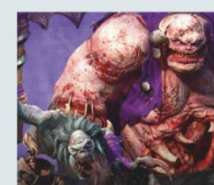
ROLL CALL *Get to know Warcraft III's factions*



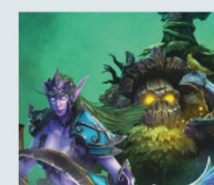
ALLIANCE
Made up of humans, dwarves, and elves, the Alliance are the all-rounders with tech, magic, and knights.



HORDE
The orcs, trolls, and tauren faction is full of melee bruisers backed up by shamanistic magic powers.



SCOURGE
The undead Scourge is fuelled by necromantic magic and enjoys a bit of cannibalism now and again.



NIGHT ELVES
The Night Elves love shooting and magic. It's a ranged faction but can also field huge giants as a tanky frontline.

pains in the arse, and there are no UI scaling options at all. It looks comically huge. The ability to zoom in is rendered more pointless because of the size of the UI, and you can't zoom out far enough to really see your surroundings. More bizarre is the inability to rebind keys without some external faffing around. This is a hotkey heavy game, so it's a huge oversight. Making a remaster in 2020 and skipping the accessibility options, aside from a new 'story' difficulty mode, is just a bit baffling.

Reforged was in beta for a while before launch, letting a large number of players test the multiplayer, and it was delayed to give the developers more time to polish it.

It could have probably done with a bit more time. At launch, players started reporting authentication problems, not being able to make custom games, and plenty of other issues. Some of them seem to have been resolved, while others that have been around since last year remain, like micro-stuttering that can occasionally reach unbearable levels.

Then there are the issues that aren't bug-related. Despite *Warcraft III* already featuring competitive ladders, Blizzard has yet to introduce them in *Reforged* at time of writing, which isn't an auspicious start for an RTS looking to revive its esports scene. Clans and automated tournaments are missing, too.

Perhaps because it doesn't want the next *Dota* to slip through its grasp, Blizzard has also changed its custom game policy. If you make a custom game in *Warcraft III* now, it belongs to Blizzard. It owns the copyright and can do what it wants with it, a policy

that looks set to prevent any real resurgence of the original game's thriving map editor community.

Unfortunately, if these things are putting you off, you can't simply return to *Warcraft III Classic* and forget about them. The original has been added to the new client, so the connection problems, lack of competitive ladders, and other issues are now shared between them. This might be the first time a remaster has made its predecessor worse.

There's a long list of disappointments, some of which may be sorted in time, but others we're seemingly stuck with. I still can't shake the itch to play more, though.

There's a real dearth of real-time strategy these days, and even with its issues, the core of *Warcraft III: Reforged* is exceptional. For years now, I've been dipping into MOBAs to get my fix, but it's not the same. *Dota 2* might

have dwarfed it, but I never got over the loss of all my units and buildings.

If you're just interested in the campaigns, which tends to be the case with most RTS players, then you may be more content with what Blizzard has released, even though you'll still encounter some rough edges. This isn't anything like a comeback, however, and with the rough launch and the community seeming to turn against Blizzard after it walked back improvements, I'm not at all confident about its future. ■

If you make a custom game in *Warcraft III* now, it belongs to Blizzard

PC GAMER VERDICT

Warcraft III: Reforged is an exceptional RTS that is unfortunately let down by this very disappointing remaster.

59

ROYALE WITH CHESS

MIGHT & MAGIC: CHESS ROYALE sends the auto-battler into turbo-drive. *By Alistair Jones*

On the face of things, this feels like the kind of game that should never have been made, an amalgamation of ideas and franchises that should barely occupy the same publishing house, let alone be drawn together in the same studio. But for all the ways in which *Might & Magic: Chess Royale* seems from afar like an affront to everything that lead to its eventual creation, it's actually a refreshingly pared-down take on an emerging genre.

For the most part, *Chess Royale* lives pretty straightforwardly up to its title. Leaning heavily on the *Might & Magic* franchise to provide a little extra validity, it places a relatively unambitious autobattler (the genre birthed by the likes of *Dota AutoChess* or *Teamfight Tactics*) into the vaguest-possible battle royale (*Fortnite*, *PUBG*) framework, encouraging 100 players to fight it out for top spot. It's an amusing gimmick to add to a new genre, but it does little to change the way players interact with one another. When all your autobattler competitors are already last-man-standing affairs, bolting the word 'royale' to the end of your title isn't exactly revolutionary.

Nevertheless, adding more than 90 extra players to the usual formula does change things up a little. Rather than a traditional health bar, *Chess Royale* grants players three lives. The

first round is something of a freebie, granting a risk-free opportunity to start building your army, but after that opening battle, every round you lose will cost one life. As players run out of lives, their avatars disappear, the 100-person grid that charts progress through each game gradually turning to black as more and more armies are knocked out. It's a ruthlessly efficient means of thinning the herd – whether it's a

close fight or an absolute rout, you'll lose the same amount of health – and it also ensures that you won't spend a frustrating half-hour rolling for the one unit that might turn your fortunes around.

CHECKMATE

The result is an autobattler that's much faster than its competitors in spite of its bloated player-count. PvE and 'Carousel' rounds are out, as is

The result is an autobattler that's much faster than its competitors

NEED TO KNOW

WHAT IS IT?
A peculiar combo of two very zeitgeist-y genres

EXPECT TO PAY
Free-to-play

DEVELOPER
Ubisoft

PUBLISHER
Ubisoft

REVIEWED ON
Intel Core i7-5820K,
8GB RAM, GeForce GTX
950

MULTIPLAYER
Yes

LINK
[ubisoft.com/en-us/
game/might-and-
magic-chess-royale](http://ubisoft.com/en-us/game/might-and-magic-chess-royale)

any sense of an economy – everyone receives the same reward at the end of a battle, with 'survivor' bonuses being granted across the board, and small 'slayer' prizes being awarded to those who eliminate other players from the competition. Building your army is also a much quicker process here than elsewhere. Synergies – collections of units that share similar traits, such as mages or assassins – are far easier to establish than in *Teamfight Tactics*, as there are fewer to build around. Items are replaced by spells, which can impact the entire board, rather than just specific units.

It's *Chess Royale*'s mobile version that fuels much of the game's speed. While its portability doesn't affect gameplay, the UI has clearly been designed with mobile users at its forefront. Buttons for using the store, unlocking spells and levelling up are particularly prominent, and the lack of fine motor control provided by a mouse has likely contributed to the choice of a very small playing board. Armies are arranged on a 3x8 grid, dramatically capping tactical depth. Thanks to the introduction of several powerful units who confer big buffs on their closest allies, many of my most successful games have hinged on simply huddling all my fighters together in the centre of the board.

As a response to the hyper-complexity of the MOBAs that spawned it, the relative simplicity of the autobattler as a genre seemed to have achieved all that it needed to. Yet *Chess Royale* has emerged as a streamlined, fast-paced alternative. The dalliance with the battle royale genre adds little to the conversation, but the pick-up-and-play approach is a welcome change to a genre that was never really about actually playing anyway. ■

BATTLES ROYALE

Five last-man-standing modes Ubisoft definitely could have made instead



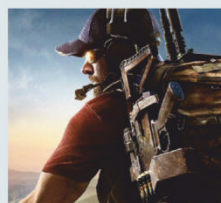
WATCH DOGS BATTLE ROYALE
Set it in London, and it's just another piece of commentary on post-Brexit Britain.



ASSASSIN'S CREED: SURVIVE
With freerunning and grappling, Ubi could have the next *Apex Legends*.



FAR CRY: BATTLE GROUND
Actually, I'm not sure that this isn't already a side-mode in one of the billion games in this series.



TOM CLANCY'S BATTLE ROYALE
Who needs a clever name when you can just put a famous author in front of the title?

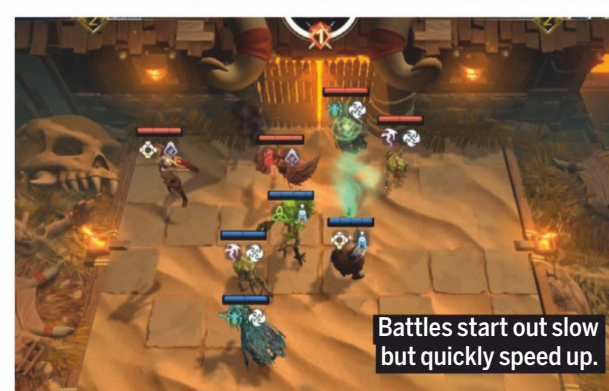


RABBIDS ROYALE
Kid-friendly, but with the kind of chaotic energy *Fortnite* could never hope to harness.

PC GAMER VERDICT

It might seem gimmicky, but *Chess Royale* is an effective introduction to a sometimes confusing genre.

70



WRITE AND WRONG

DEATHTRAP DUNGEON throws the book at you, and it hurts. *By Luke Kemp*

If reading sounds like too much hard work to you, then a book that also has the cheek to ask you to expend valuable snack-fetching energy on rolling dice would be positively insulting. But fear not! This adaptation of one of the most successful Fighting Fantasy books, a series co-created by Ian Livingstone and Steve Jackson, is perfect for the lazy. It does almost everything for you, including proving that books and games are most definitely not interchangeable.

This is not, strictly speaking, a videogame adaptation of the book Deathtrap Dungeon. With a few tiny tweaks, it is the book Deathtrap Dungeon, albeit a version that allows you to pretend that you're friends with the actor Eddie Marsan, who takes care of the reading and dice rolls for you. Perplexingly, there's no option for subtitles at the time of writing, but these will be added in a post-launch update. The use of video does at least allow for lip reading, aside from brief sections where an illustration dominates the screen.

Every word is read to you by Marsan while he sits in a supremely comfy-looking chair. Although the setup initially feels rather weird, Marsan's subdued yet nuanced delivery quickly places you squarely into a world of danger, death and avarice. He's a very good storyteller.

The dungeon of the title is like a cross between Saw and The Hunger Games (although the source material precedes both), but in a D&D style world. You'll need to make your way through a constantly challenging gauntlet of puzzles, traps and combat with the promise of wealth at the end. Success or failure is down to skill checks, so how you set your character out at the start is crucial.

DO OR DICE

My first run through sees me not so much Conan The Barbarian as Mr Bean. I laugh at myself as I seemingly fall into every trap and mistake possible, unerringly hitting every pratfall available. Luckily, as with the book, where you could flip back to a

previous page if you fumbled into death, the game saves with pleasing regularity and allows you to reload one at any time.

However, these saves are icons on the map, with no indication of which

scenes they represent, something that will cause me plenty of frustration later.

Battles are simple. Your Skill value is pitted against that of your opponent, plus the value of two dice (that is, each fighter

rolls two dice). If the totals are the same, nobody takes damage; if one side has a higher skill plus dice number, the other loses two stamina points. The random nature of the dice rolls means that, unless you begin with extremely high skill, surviving until the end is difficult, and even unlikely. Depending on the path you take and how your luck holds out for certain events, you can lose some or all of your stamina-

Every word is read to you by Marsan as he sits in a comfy-looking chair

NEED TO KNOW

WHAT IS IT?

A valiant but flawed attempt to bring Fighting Fantasy to your PC

EXPECT TO PAY
£8

DEVELOPER
Branching Narrative Ltd

PUBLISHER
In-house

REVIEWED ON
GeForce GTX 1650, AMD Ryzen 5 3550H, 8 GB RAM

MULTIPLAYER
No

LINK
branchingnarrative.com

replenishing provisions, and/or have your skill permanently reduced.

I reach a point where an unavoidable event kills me before I can even begin a battle, because I'm missing my shield. I start going back through my saves, and realise with dismay that I'd have to go back at least an hour to be confident of getting past that point.

I decide to restart the whole adventure instead, rolling and rerolling dice until I have maximum skill and luck, and I'm just one point shy of pure stamina perfection. I'm going to play in goddamned God Mode this time.

It is only at the very end of the adventure that I discover I must possess three very specific items, and that this is the only way to successfully complete the dungeon. I have one of the items, and no idea where the other two are.

A perfect playthrough would take about two and a half hours. It takes me seven hours of trudging backwards and forwards before I finally exit the dungeon triumphant. While that doesn't sound too bad, at least half that time feels more like work than play, and I skip a lot of skippable footage. Plus I eventually cave and search for a walkthrough for the original book, because I just want the whole thing to be over.

The adventure by its very nature involves an enormous amount of repetition as you learn where to go and what to do. But where with a book you can flip past entire pages once you've read them, the PC version has lots of little pieces of narration that you cannot skip, including quickly annoying battle commentary. Each hour after the third adds +2 to your frustration and +1 to your boredom. ■

BAIT AND TRAP

The arc of a playthrough



PC GAMER VERDICT

Deathtrap Dungeon is proof that a good book doesn't automatically make for a good gaming experience.

55

I mean come on, there's only one choice here.

Keep walking North
Buy the stilts

This is Mr Livingstone himself. Really.

Leave the room and head North
Cut him free from his chains

Much like Dora The Explorer, you have a map.

Player	Cave Troll
 12 + 8 	 10 + 3 
 20	 13
 20	 1

Eat Provisions

Try your Luck against the Cave Troll

Attack the Cave Troll (4)

You only have a short time to decide each action in battle.

Continue North along the tunnel

Try to slide the iron plate

Try to open the door

SHOT IN THE DARK

Get a taste of living **THROUGH THE DARKEST OF TIMES**. By Luke Kemp

No matter how intelligent or empathetic you are, it's incredibly difficult – arguably impossible – to truly comprehend the enormity of the atrocities of Nazi Germany. Videogames usually seek to loosen your grip on the concept further, by saying little more than “go shoot every Nazi soldier you find in the face”. But this pigeonhole-defying game, while still fully failing to communicate the scale of events, opens your eyes somewhat wider in a very impressive way. The result is an incredibly affecting emotional journey through history.

You and your small band of resistance members are German citizens; names, attributes and appearances randomly generated. The story begins with Hindenburg appointing Hitler chancellor in 1933, and runs right through until the aftermath of the war in 1946. Each turn represents a week (between time jumps), and you need to decide which tasks to assign to each of your members.

Success in each task is determined, in part, by the total value of the relevant attributes offered by the characters you assign. Things aren't as simple as that though. At the beginning of each week, I'm presented with three newspaper headlines. The news is historically accurate, and ordinarily details successes for the Nazi regime. My group's morale is reduced accordingly before I've even done anything.

That's not all. Even if an action is successful, there's a high chance that at least one member will start to gain the attention of the authorities. If I leave this unchecked, the Gestapo will arrest them, taking them out of action. Any heat on any members assigned to a task starts to increase the risk of failure. I need to select tasks to keep my ever-depleting supply of supporters up, too. If I lose too many supporters, or group morale hits zero, it's all over.

Nobody around me can be guaranteed to be immune to the toxic charms of the charismatic Hitler and his all-powerful party. Most of these supporters of fascism, rather than

being cartoonish villains, are otherwise unremarkable and... nice. They bake cakes. Host parties. Talk to me politely. There are vocal and

angry critics of the Nazi regime, but they risk not only arguments with their peers, but the potentially deadly wrath of the authorities.

When I come across strangers, I don't know whether I can trust

them or not. How could I?

Even when I find somebody that seems to offer a ray of hope – somebody that one way or another promises help from the outside world – little or nothing tends to come of it. Yet I've become emotionally invested enough to try my best.

Small acts of rebellion under fascism are difficult and dangerous

NEED TO KNOW

WHAT IS IT?
The story of Nazi Germany, as experienced by a fictional group of its citizens

EXPECT TO PAY
£13.50

DEVELOPER
Paintbucket Games

PUBLISHER
HandyGames

REVIEWED ON
GeForce GTX 1650, AMD Ryzen 5 3550H, 8 GB RAM

MULTIPLAYER
No

LINK
paintbucket.de/en/ttdot

Early on, I come across a Jewish man being beaten by members of the SA. There's an option to ignore the situation but, even on a second playthrough, there's absolutely no way I can bring myself to do that.

PAPER VIEW

The first time around, it's all extremely powerful. The steady drip-drip-drip of Nazi horrors through newspaper headlines pierces me with cold reality again and again, while seeing people suffering in the story sequences urges me on to do whatever I can during turns on the map. A second playthrough however shows that the story is definitely rigid, and the choices I make there often have little or no effect.

Each chapter has a few major blows to the Nazis available. These require specific items which, in turn, need specific sequences of tasks to be successfully completed (and all this within a strictly set number of turns). I'm never able to complete any of these tasks, and I'm still not sure whether this is due to design or my own poor time management. Ultimately, it doesn't matter, because the message is the same. Small acts of rebellion under fascism are difficult and dangerous; spectacular acts of rebellion a hundred times more so.

Through the Darkest of Times is as dark as it is important. One side of the game explicitly tells the final chapter in Hitler's rise and fall, from the perspective of ordinary citizens trying to navigate the repulsive views of their friends and inconceivably horrific rumours regarding the regime. The other side forces you to juggle the urge for action with the need to care for your group, with no easy answers. It forms a cohesive, uncomfortable whole. ■

PC GAMER VERDICT

Through the Darkest of Times is a superbly crafted game that serves as storyteller, teacher, and concerned friend.

87

HARSH REALITY

You can change things... a little



1 The display of swastikas can be disabled for those who wish it.

2 Sadly, you can't sway characters snared by propaganda.

3 Story sequences offer choices, but they're rarely important.



You get a breather between missions at your HQ.



Story events are fictional, but match historical record.

It is Saturday and I am on my way to buy groceries for the weekend. When I see the shop in the distance, I can already tell that something is up.

In front of the building, a crowd of people has gathered, including a few men wearing the brown uniform of the SA.

Get closer

Turn around and go back home



You might be able to recover a mission gone wrong.

WAY OF THE DRAGON

DRAGON BALL Z: KAKAROT adds RPG elements to a breezy retelling of the anime saga. *By Liz Henges*

When the Dragon Ball Z anime aired, the first arc lasted 39 episodes. Assuming every episode is around 22 minutes, that's about 14 and a half hours until Vegeta is defeated. Dragon Ball Z: Kai cuts this down to 26 episodes, totalling nine and a half hours' viewing time.

In *Dragon Ball Z: Kakarot*, you're able to get through this first arc, including all the sub-stories, in about six hours. As a game, it understands what you're here for – larger than life, planet-destroying battles – and does them out in spades, with added RPG-style mechanics for a sense of growth and progress.

The game's story covers the four main arcs of the show – Saiyan, Frieza, Cell, and Buu – but cuts out even more of the fluff than Kai does. As a result, you still get all the main story beats but without the need to watch battles that take multiple episodes to complete. Instead, you'll be fighting them all yourself in a fraction of the time.

The button-bashing battle system requires you to start with basic ki strikes and punches, and launch powerful skills when the opportunity presents itself. It feels like there's a lot going on as *Kakarot* throws you into the deep end of its mechanics and explains itself later, but once you get the hang of things the fighting becomes significantly easier. It all

boils down to getting in close, landing a basic combo, and following up with a special attack.

The way the developer decided to combat against landing hits too easily is to give bosses counterattacks and occasional armour that cannot be broken through. It doesn't feel great

when you start to land a combo only for an enemy to stop being stunned and launch a attack back out of nowhere, especially when their strikes launch you so far away you have to spend ten seconds sprinting your

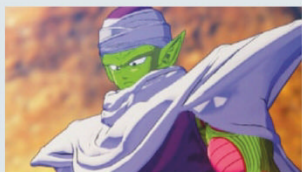
character back into the fray.

Kakarot provides an open world to explore, and all sorts of things to collect, but you never feel forced to run around and do anything other than the main story. If you so choose, you can waste hours fishing, collecting materials, and flying through the air collecting Z Orbs. If you don't want to deal with any of that, though, you can just move on and come back later. There's no need to grind or worry about finding ingredients to cook the perfect meal,

Dragon Ball Z: Kakarot covers the four main arcs of the story

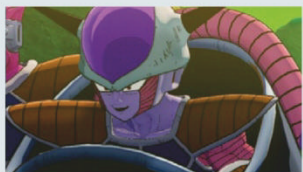
REST IN PIECES *A man of many deaths*

Goku's mate Krillin has died enough times to give Sean Bean a run for this money. Here are three ways he's met his end:



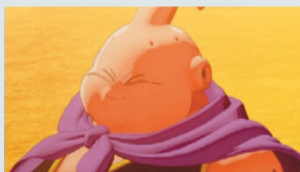
SNAPPED NECK

In the original Dragon Ball, he was killed by one of Piccolo's kids, kicking off the King Piccolo arc.



PSYCHO BOMB

Frieza blows him to bits in Dragon Ball Z, famously triggering Goku to go Super Saiyan. Kamehameha ha!



EATEN

Pink weirdo Majin Buu turns him into chocolate and eats him up, along with loads of his mates.

NEED TO KNOW

WHAT IS IT?
A Dragon Ball RPG that follows the main Z saga arcs

EXPECT TO PAY
£49.99

DEVELOPER
CyberConnect2

PUBLISHER
Bandai Namco

REVIEWED ON
Intel Core i7, Geforce GTX 980 TI, 16 GB RAM

MULTIPLAYER
No
LINK
bandainamcoent.com/games/dragon-ball-z-kakarot

no need to complete every sub-story... but, the choice is there.

While this succeeds in not putting too much pressure on the player, the other side of the coin is that the game struggles to give you much reason to do its side content. Most sub-stories reward 'Soul Emblems', which can be slotted into your 'community board' for bonuses. But in practice, the benefits you gain from these don't feel impactful enough to be worth the effort of straying from the main story – it's systems for systems' sake.

BALL GAMES

And the game just keeps layering new ones on. There are skills to level up, but sometimes you need to train before you can spend Orbs on your skill tree. Meals give you both permanent and temporary effects, but you can also get Chi-Chi to make full meals with even more benefits... if you can find the recipe first. You can train at Turtle School with Master Roshi by completing special challenges. And, of course, you have to collect the Dragon Balls. There's cool stuff in there, but the overall effect is to weigh you down with too many systems and mechanics.

So *Dragon Ball Z: Kakarot* is by no means perfect, but as an action-RPG that allows you to relive the entire story of the show in a fraction of the time, it's a really solid effort. The game sometimes buckles a little under the weight of its own systems, but it's still a pretty fun title for fans looking to take a trip down memory lane, or newcomers intimidated by the idea of catching up on hour upon hour of 10 year old anime. Adding RPG progression is a simple trick, but it works, investing your journey with more weight than previous, purely action-focused adaptations. ■

PC GAMER VERDICT

A light and fun RPG that does right by the saga, even if it sometimes gets bogged down with its interweaving mechanics.

76

The character's are brilliantly expressive, thanks to a cel-shaded art style.



Go big or go home.

SKILL TREE

There are loads of different things to level up

Piccolo

Special Beam Cannon

Level 1 Ki Required 31
Unleashes charged Ki as a devastating beam. High Ki consumption for high damage.

Z Orbs Needed

0	0	0
0	0	0
2289	423	250
24	0	0

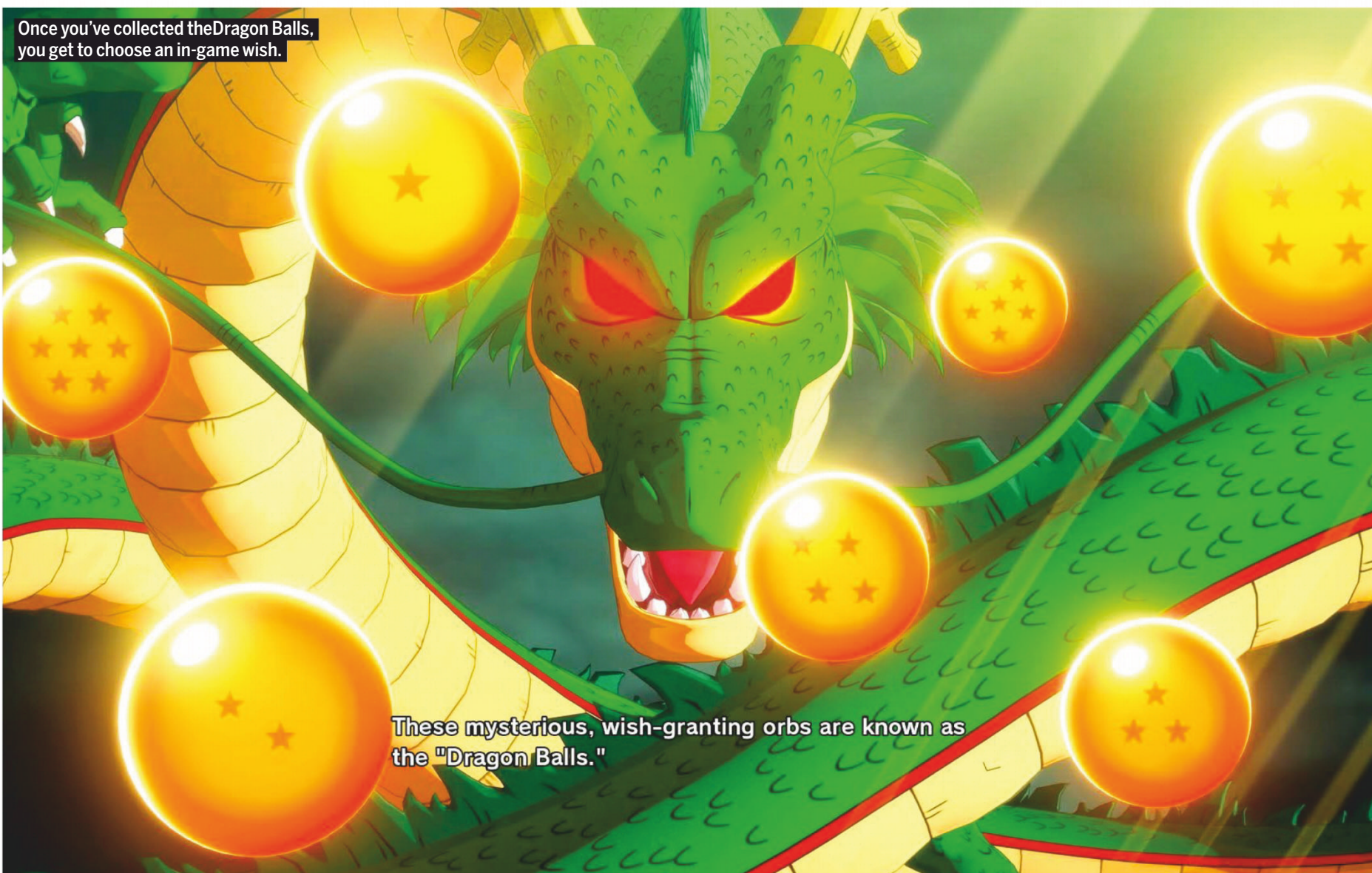
? Select Super Attacks and other skills to learn.

Select RT Zoom Out X Super Attack Palette A Confirm B Back



Sorry Yamcha, your fate doesn't change in *Kakarot*.

Once you've collected the Dragon Balls, you get to choose an in-game wish.



These mysterious, wish-granting orbs are known as the "Dragon Balls."

WALK THIS WAY

Stick it to the man in public sign puzzler
THE PEDESTRIAN . By Phil Iwaniuk

In those moments when your mind drifts away from whatever mundane reality you've put in front of it, do you ever imagine the stickmen in road signs coming to life, and having adventures? No, me either. But it's to everyone's benefit that somebody at Skookum has, because it provides a fine foundation for the studio's debut.

It might just have easily been adapted into a Pixar short: given sentience and agency over the other objects within the signs it occupies, a stick person breaks free from the confines of their painted prison and hops from sign to sign, from subway to street, from mild peril to slightly more pressing peril.

That might not sound a deep enough well of creativity to birth an entire game, but consider this: firstly, the puzzles build on each other in complexity in remarkably well-judged increments and are interwoven between non-taxing platforming sequences. Secondly: it is quite short.

What's most striking about *The Pedestrian* isn't the craftsmanship of the puzzles themselves, but where they exist within the game world. You're always looking at a 3D environment, technically, but focusing on 2D elements on a flat surface – a whiteboard, a computer screen, the odd blueprint, or most often some abstraction of a public safety or road sign.

Skookum's clever about this unique way of presenting its puzzles. With your attention placed squarely

on one element, hints flutter away on post-it notes elsewhere onscreen and as the tasks at hand grow increasingly more involved, the intrepid stick person – you can pick a male or female avatar – affects not just the arrangement of the signs, but the 3D world surrounding them too.

The interweaving quality between its 2D planes and wider world work is not just as a bit of visual interest, and I'm sure I wouldn't have enjoyed this nearly as much if the whole game existed as a procession of signs

along a featureless wall. The 3D environments are markers of progress – in a very real sense, it feels like an adventure thanks to these scenery changes.

Narrative's certainly present, but in the loosest sense possible. You have to actively look for it, think about every detail, notice the phrasing of Steam achievements and the copy on its store page. In other words, *Monkey Island* it ain't. The absence of dialogue or, well, any characters either, helps your brain to zero in on the task at hand without unnecessary expositional distractions, so it's a sensible design call. I did find

Skookum's clever about this unique way of presenting its puzzles

NEED TO KNOW

WHAT IS IT?
A 2.5D platform puzzler set within signs

EXPECT TO PAY
£15.50

DEVELOPER
Skookum Arts

PUBLISHER
Skookum Arts

REVIEWED ON
i7 9700K, RTX 2080 TI, 16GB RAM

MULTIPLAYER
No

LINK
skookum-arts.com

myself craving a bit more revelation, though. It's become a bit of a genre staple now, hasn't it?

TIME OF THE SIGNS

While *The Pedestrian*'s wider world gives a sense of forward momentum and a bit of meaning to your actions, the complexity of its mechanics deepens over its runtime too, and the visual language you need to assimilate broadens. What begins as walking through doorways and climbing ladders to hop from sign to sign quickly evolves into rearranging several signs, connecting doorways and ladders to reveal a critical path through them all.

And just as that absorbs into your grey matter, it shifts again. Dragging boxes through the rat runs you've constructed. Using switches and levers to operate bounce pads, pistons, elevators and switchable platforms. Within an hour or so the signs that once looked like cute Pixar short material now resemble circuit board diagrams of your nightmares.

This ascension through the ranks of friendly to taxing obstacles is handled with the pacing and and intuition of a veteran studio. I am, in all honesty, quite a stupid man. But I never felt hopelessly stuck here, and that says much more about Skookum's craft than my IQ.

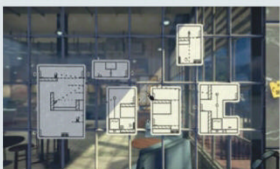
Perhaps it's unfair to chastise it for not doing more. Perhaps we've just been spoiled by the likes of *Braid*, *Inside* et al whose reveals and U-turns leave real impact. Spoiled or not, I was left cold by the scarcity of narrative or stylistic flourishes, but fortunately the difficulty spike's gradient is so expertly judged and the presentation so inherently endearing that *The Pedestrian* can't help but be a joy for its brief duration. ■

PC GAMER VERDICT

Novel presentation and a masterful complexity curve, but *The Pedestrian*'s very shy about storytelling.

75

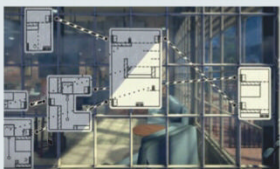
GIVE ME A SIGN *The stages of solving a puzzle in The Pedestrian*



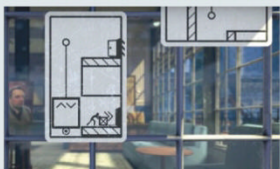
INITIAL DISMAY
OK, this one's definitely harder than anything before it. Bugger.



AIMLESS REARRANGING
Maybe I'll hit on the right route by sheer chance?



ACTUAL PROGRESS
I still don't know how, but this works now.



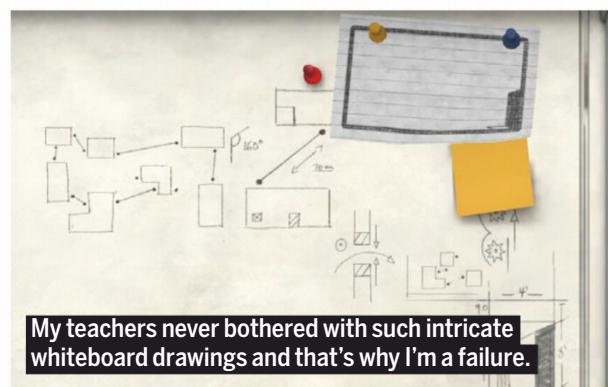
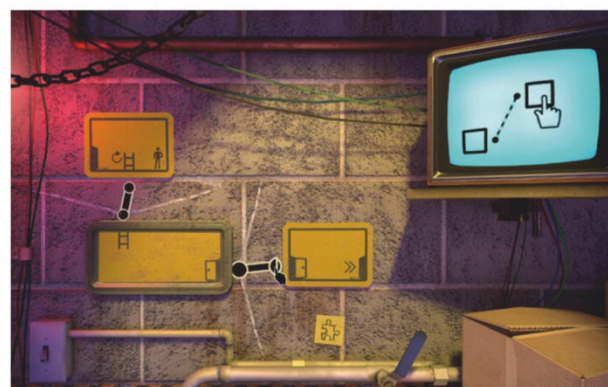
UNBEARABLE SMUGNESS
I bet I did that in half the time it'd take anyone else.



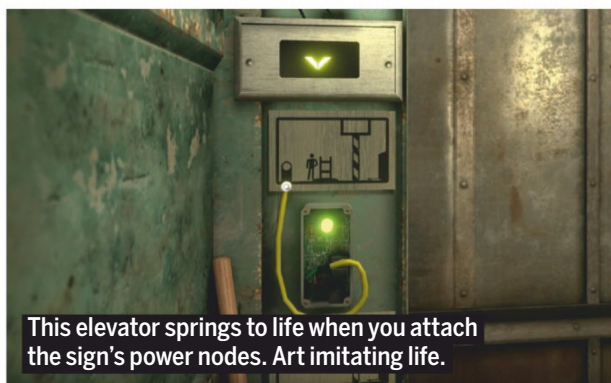
Look closely and you'll see the next set of puzzles in the background. That's foreshadowing, that.



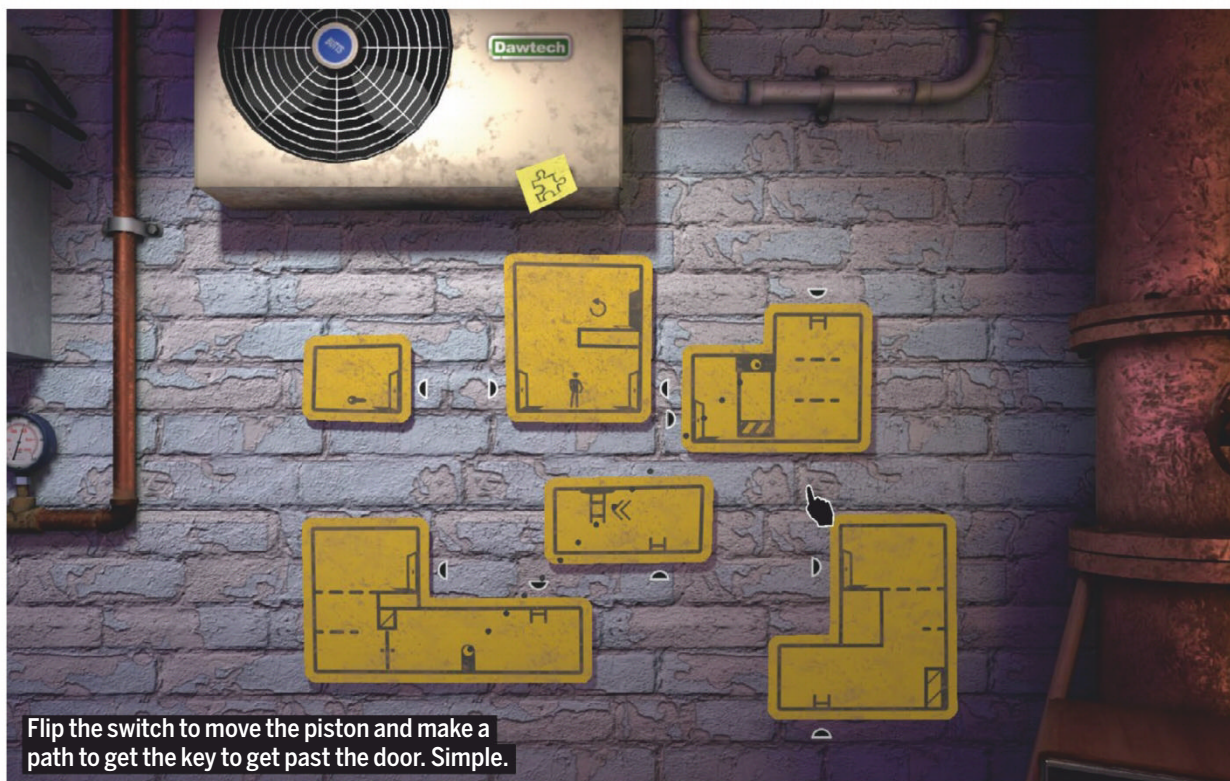
Not all puzzles are head-scratchers – sometimes they're just there to teach a new element.



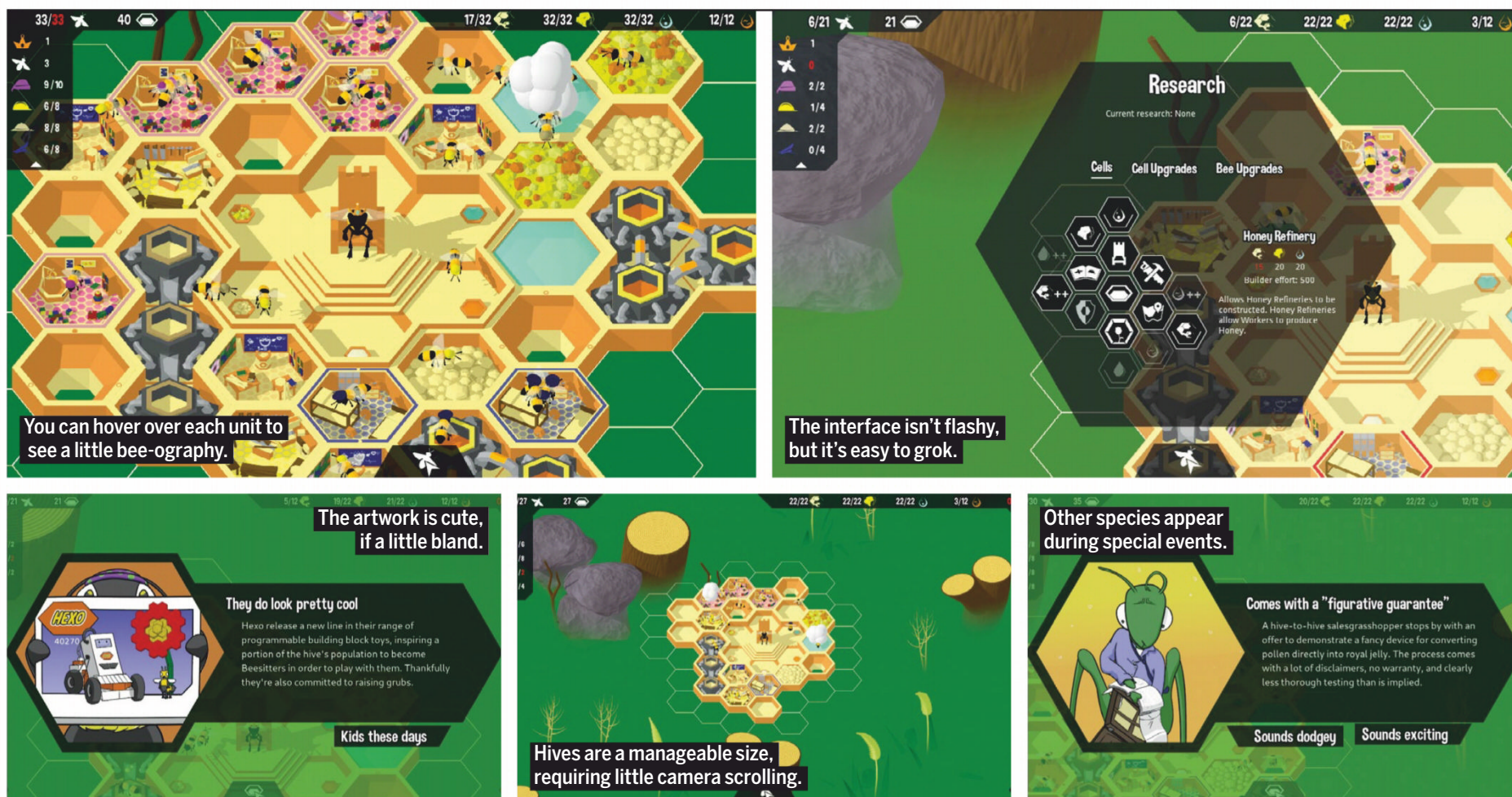
My teachers never bothered with such intricate whiteboard drawings and that's why I'm a failure.



This elevator springs to life when you attach the sign's power nodes. Art imitating life.



Flip the switch to move the piston and make a path to get the key to get past the door. Simple.



HONEY TRAP

Build a thriving bee community in buzzing base-builder **HIVE TIME**

If you've ever made small talk with a bee, you'll know that they take their work awful seriously. Inquire about their leader, Jerry Seinfeld, or try to convert them to salted caramel, and they'll just sit there, sticking their beaks in your flower bed. Well, if the bees get wind of *Hive Time*, I'm not sure how they'll react. It's a moderately involved simulation game that puts you in charge of a friendly bee hive. But it's very tongue-in-cheek, and probably not entirely accurate to the hive experience.

You're in control of a small hive that's only just about ticking over. There are few workers buzzing about in search of nectar, while the queen sits on her throne twiddling her antennae. To succeed, you'll need to gradually expand your borders, research new technology, and construct workshops and storerooms for all those lovely resources. Your ultimate aim is to make royal jelly, with which you can replace the serving queen when she eventually dies. But that's a long way off yet: a persistent, growing threat lurking in the periphery.

As someone who finds base management games daunting, I appreciate the streamlined, approachable nature of *Hive Time*. There are only a few menus, which pop up as you click on cells, while the

upgrade trees and population sliders are kept tidy and manageable. More importantly, your hive is fairly compact: about the size of a small fort rather than a sprawling metropolis.

The early game is painfully slow, but the later game is a stress-fest

While you will have to worry about enemy attacks later in the game, you'll spend most of your time in *Hive Time* futzing about with population sliders, trying to make enough drones to staff

your various bee departments. Oh, but that research is almost complete. Crap, but I can't construct it with these paltry resources, so I'll need to build some new storage rooms, etc, etc. The early game can feel painfully slow, but the later game is a stress-fest. There's no option to speed things up, or slow down time, which feels like an oversight.

NEED TO KNOW

WHAT IS IT?

A game where you expand, defend and manage a beehive

EXPECT TO PAY

Free

DEVELOPER

Cheeseness, Mimness

PUBLISHER

In-house

REVIEWED ON

AMD A4-6300@3.7GHz, 6GB RAM, GeForce GT 610

MULTIPLAYER

No

LINK

bit.ly/HiveTime

BEE PUN NO. 46

I mentioned before that this is a lighthearted game, and that's evident in the artwork, which is blandly cartoonish but, vitally, extremely readable. This is not a game with a vast amount of character, but there is humour in the descriptive text, and in the random events that crop up every so often. While you can safely ignore most of these cutesy story bits, you're occasionally invited to make mysterious deals that will either help, or hinder, your hive progression. The outcome is just some numbers going up or down, but after all the toil it can be exciting to roll the die. If only these deals would come up slightly more often during the game.

They're enough to inject a little flavour into a honey that feels slightly watered-down, but that should be more edifying to newcomers as a result. As for those looking for an authentic bee simulator – a honey strategy game – I'm afraid they'll have to find it elsewhere. ■

PC GAMER

VERDICT

A lightweight and approachable management game that would be a good entry point into the genre.

71

HYPER-AWARE

Fall to the **MADNESS OF THE COASTAL STRUCTURE**

Before the Web, there was Hypercard, a system for the Mac that used innovative hyperlinks to shunt users between content cards. These cards could have contained facts, contact details, or monochrome pictures – or they might have comprised a point and click adventure game. Without Hypercard there would be no *Myst*, and, probably, no *Madness of the Coastal Structure*, the latest from acclaimed interactive fiction author Porpentine.

Built using the Hypercard Framework, *Madness* is a text adventure that feels extremely early '90s. It isn't just the Hypercard stylings – which are crammed with beautiful pixel iconography – but also the setting, which brings to mind the classic Infocom adventures.

The realm of *Madness* isn't a cohesive one. Centaurs rub shoulders

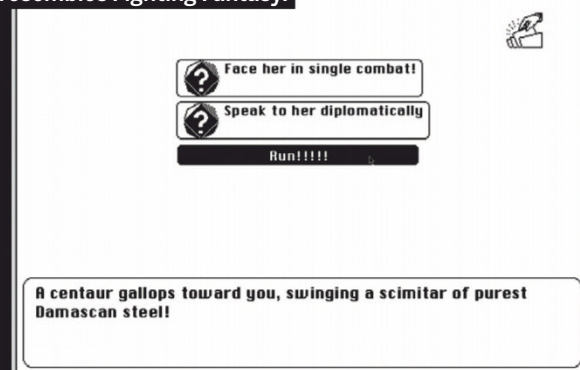
with enchanted pop bands, strange machines and other oddities. It's a game crammed full of memorable sights, and with playful writing that makes the most of every encounter.

After arriving in a jungle, you soon find yourself exploring an imposing tower that's at once modern, futuristic and fantastical. You'll roll dice and improve stats and come to a sticky end, probably lots of times. Yep, this is one of those adventures that wants you dead.

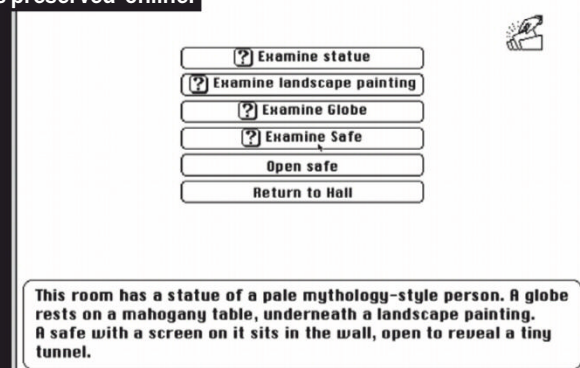
This could be annoying, but it isn't in the least. *Madness* has the good grace to smile as it shivs you between the ribs. The deaths are probably the best bit, written with obvious glee – and you can always reload, or rewind, to return to life. Perhaps the atmosphere is a bit thin. You may love or hate the self-aware tone. But this is what it's like when a dev is having fun making a game. ■

82

With its die rolls and stats, the game resembles *Fighting Fantasy*.



You can find loads of old Hypercard games preserved online.



NEED TO KNOW

EXPECT TO PAY
Free

DEVELOPER
Porpentine

LINK porpentine.itch.io/coastal-structure

GARAGE ROCK

Tinker with instruments in **HAUNTED GARAGE**

I'm sure every musician could do with an infinite practice room: a place to store, and of course play, every intriguing-looking instrument that comes along. *Haunted Garage*, as you've probably guessed, does just that, by giving you an endless white void in which you can stash a collection of fictional instruments.

The absolute best part of this peculiar adventure game is playing with those devices, clicking on each to connect wires and flip switches and twist dials, to see what noises you can produce. They all play at the same tempo, and can be left alone once cajoled into life, creating an automated orchestra. You're a scientist, a tinkerer. A kid in a toy shop, pushing all the buttons to see what happens.

But that's only half the story. Click on a door inside the void and you'll

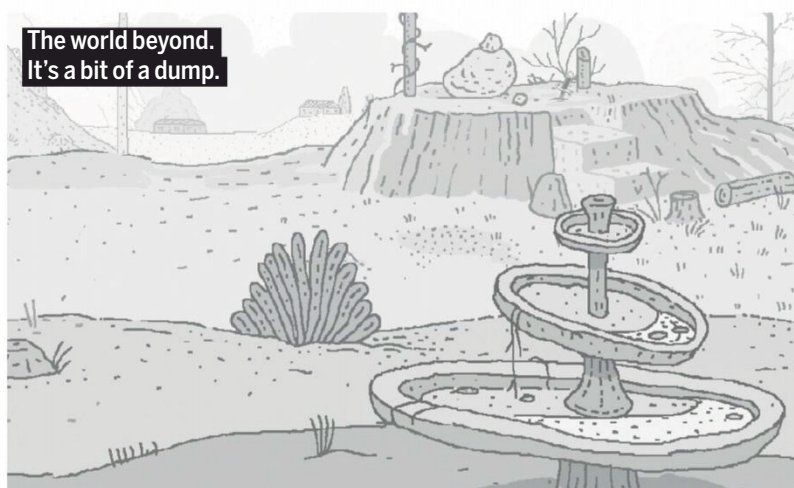
be taken to the world outside, which is full of missing items, and people seeking them. So, you scroll around, you click on things (in the manner of a hidden object game), and you ferry the items back to them.

In return you're given new instruments: a big honking organ thing, or a hefty drum machine, even a man holding a couple of wooden sticks. You place these wherever you care to, then you coax them into life. It's strangely compelling to be left alone with all these tactile devices.

Haunted Garage is an attractive, whimsical adventure game with interesting scenery, and no challenge to speak of. But it's also an absorbing music game featuring some of the best virtual instruments money can't buy. You'll finish the adventure bits just to get to the music ones, to return to your rapidly expanding instrument collection. ■

84

The world beyond. It's a bit of a dump.



NEED TO KNOW

EXPECT TO PAY
Free

DEVELOPER
Games For Ghosts

LINK hauntedgarage.itch.io/haunted-garage

Can't find the right accent cushion? Try sitting on the dead.



RAGNAROK GODDESS

Casting the runes in **HELLBLADE: SENUA'S SACRIFICE**

Much like how you can tell a lot about a person from their shoes, it's possible to glean information from the way a game handles its ladders. Stay with me. A game that lets you recklessly slide down suggests an underlying sense of mischievous fun. Conversely, if it could, I get the sense *Hellblade* would explain to me in great detail how each rung of every ladder reminds Senua of some half-repressed trauma.

That's an empty way of saying *Hellblade*, understandably, takes itself very seriously. It demands I listen when it talks. In some ways it's the action-adventure equivalent of being left with a deeply religious aunt, albeit a rather exciting one daubed in woad. The opening does a thoughtful job of establishing Senua's psychosis and it's impossible not to feel immersed as a chorus of conflicting voices sets the scene. And as striking as *Hellblade* is, it's the audio that truly resonates. It's also unique for a game to give you such conflicting advice. Turn around. Go back. Give up. Headphones are a necessity here.

And you need the voices. This is a deliberately sparse game and the lack of UI makes everything feel more desperate. Choices feel instinctive,

not considered. You never know how much health a boss has left, which makes the final stages of each fight more frantic. Slapping some crisp-fonted display over the top would be like hearing an Alan Carr audio commentary explaining every creative choice on your favourite music track.

It's the action-adventure equivalent of being left with a religious aunt

It seems flippant to talk about mechanics when the subject matter of the game is so heartfelt, but *Hellblade* can be a

frustrating experience. Senua is infected with a magical rot that spreads up her arm each time she dies. You're led to believe if it progresses too far it's game over, progress lost. It's a fascinating way to add peril to the experience, but it makes you completely reliant on the game's ability to impart meaning with minimal explanation. And, after

NEED TO KNOW

WHAT IS IT?
Articulate action-adventure game about death and psychosis

EXPECT TO PAY
£24.99

DEVELOPER
Ninja Theory

PUBLISHER
In-house

REVIEWED ON
Intel Core i7-7700 CUP
@ 3.60GHz, 16 GB RAM,
NVIDIA GeForce GTX
1070, Windows 10

MULTIPLAYER
No

LINK
hellblade.com

tumbling off logs, getting blindsided by spawning enemies, and burning to death for not running through fire, I didn't find *Hellblade* entirely up to the task. Navigating some bits feels like trial and error, which is unpleasant in a game that teases you with such high stakes.

WRACK AND RUNE

Hellblade's journey is somewhat undermined by its raw gaminess. In the early stages I got trapped in a loop of searching for hidden runes, allowing me to open locked doors and search for more runes.

The repetition makes it feel like a Grasshopper Manufacture game about the life and work of Carl Jung. 'You can't open the door and go to level four until you've addressed your dysfunctional attempts to regulate self-esteem.' This is a wider criticism of *Hellblade*, and the only thing I found at all disappointing: it feels like a collection of repetitive tasks rather than a cohesive whole. ■

PC GAMER VERDICT

Occasionally frustrating, *Hellblade* looks great, sounds better, and asks questions few other games dare.

75

GOZER FUND ME

Nostalgia in **GHOSTBUSTERS: THE VIDEO GAME**

I feel like *Ghostbusters: The Video Game* is what seven-year-old me would have asked for from the Make A Wish foundation. The attention to detail is almost overwhelming. Proton packs jangle as you run. PKE meters bloop in exactly the right way. And somehow, a soundtrack from a 35-year-old movie is expertly retrofitted to a modern(ish) action game. I get misty eyed just hearing the menu music.

But the most striking thing is still the characters. Murray oozes back into Venkman's sleazy charm. Ray is relentlessly chipper. And Winston is inexplicably missing from the first hour, just as he was in the movie. It's amusing, well written, and implemented in a way that rarely feels forced, although the new recruit could hardly be more generic if a team of CIA plastic surgeons spent

months discussing how to make his face more forgettable. You could argue it's all about the established cast – because it is – but playing as a positron collider strapped to a crash test dummy does rob the game of some character.

There's a simple joy in shooting up famous locations with a pretend spook laser. Getting this right was almost as important as nailing the script, and they feel fun to fire. The whole process of wrangling ghosts and slamming them into traps is satisfying, too. The game becomes unwieldy when there's loads going on, but the chaos is quite exhilarating. You even have to balance the amount of damage you cause against the amount you earn, which feels like the perfect way to adapt a film celebrating the triumph of private enterprise over environmental protection standards. ■

75



The UK Ghostbusters features Bertie Bassett scaling a Weatherspoons.



They didn't even make a Phantom of the Opera quip here...

NEED TO KNOW

EXPECT TO PAY
£20

DEVELOPER
Saber Interactive

PUBLISHER
Mad Dog Games

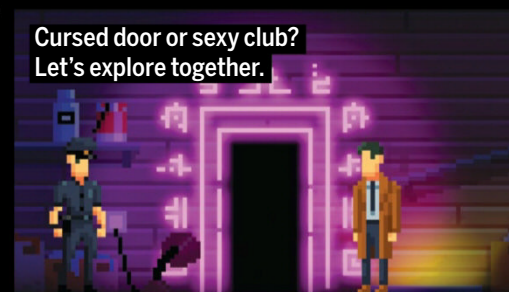


Rosa freelances for PC Gamer, apparently.

THE BLACKWELL LEGACY

Another ghostly title set in New York, *The Blackwell Legacy* was the second game from *Unavowed's* Dave Gilbert, released back in 2006. Luckily, point-and-click games don't age. The story holds up and most of the scenes have conflict and purpose. The stakes are clear for hero Rosa, who has to work with spectral guide Joey or risk being institutionalised. It's a knowing adventure game: there's even an animal puzzle that nods to *Broken Sword's* wretched goat. Couple this with characters that feel relatable if not always likeable, and it's a good alternative to the *Ghostbusters* approach to undead relations. ■

84



Cursed door or sexy club? Let's explore together.

THE DARKSIDE DETECTIVE

This "micro-adventure game" presents you with six bite-sized bits of paranormal investigation, each lasting around 40 minutes. That sounds short, but that's the point – I love being able to dip in, complete a case, then come back another day. It's a simple, dialogue-led adventure: the characters don't even move, but I'm too busy enjoying the buffoonery of Officer Dooley to notice. And it's a game that nods to so many other mediums that it looks like it has a nervous twitch. Thanks to its humour and episodic presentation, it's like the video game adaptation of Garth Marengi's *Darkplace* we never knew we needed. ■

78



Anything consenting between adults and ghosts.

GHOST MASTER

In *The Sims*, it's usually an accident when your inhabitants end up being terrorised by a vengeful spirit. (That, or you've entombed the deceased's ashes in a secret compartment so they can never find peace.) But in 2003's *Ghost Master*, it's precisely the point. It's essentially a haunted puzzle game in which you have to scare people by tethering ghosts and ghouls to specific items or areas. The result feels like if James Wan produced a movie about the disappearance of Mortimer Goth. ■

70

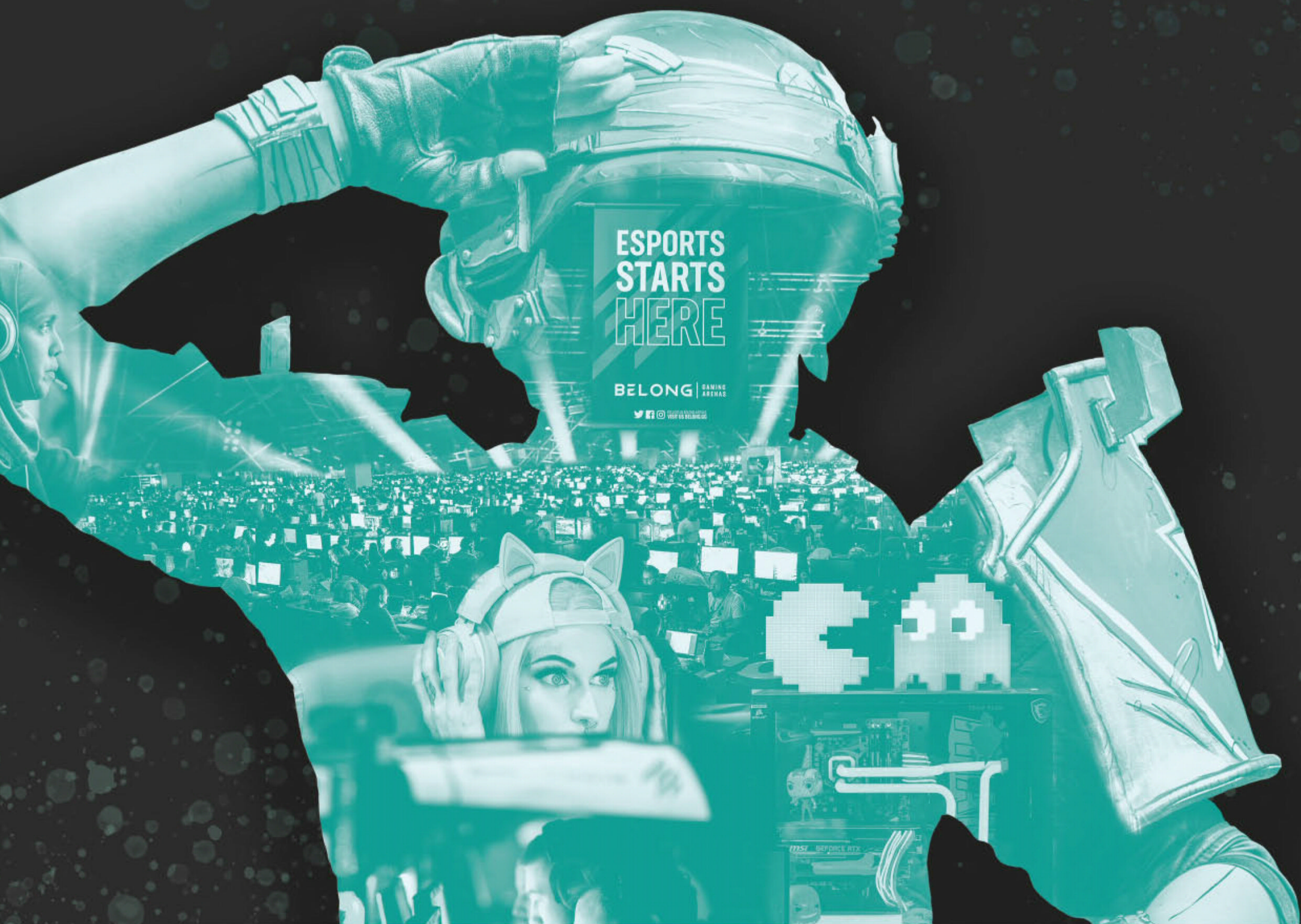
INSOMNIA



GAMING
FESTIVAL

10TH-13TH APRIL, NEC BIRMINGHAM

LAN - ESPORTS - LATEST GAMES - 24 HOUR PC GAMING
COMMUNITY TOURNAMENTS - PRIZE GIVEAWAYS
EXPO - TABLETOP RPG'S



WWW.INSOMNIAGAMINGFESTIVAL.COM



HARDWARE

GET THE PC YOUR GAMES DESERVE



96

GROUP TEST

We rate the best mechanical keyboards on the market.

100

TECH REPORT

The latest advances in microchip technology.



102

BUYER'S GUIDE

Our expert advice for building your next PC.

GROUP TEST

MECHANICAL KEYBOARDS

Make the switch, claim victory, and make a great noise doing it with these clicky beauties

By Alice Newcome-Beill, Alan Bradley

Taking the plunge and investing in a mechanical keyboard can alter the whole feel of your PC. There's nothing wrong with using a stock keyboard, but opting to upgrade one of the main ways you interact with your computer gives you a more personalised experience. Their signature feel is down to the mechanical switches, giving each one a little bit of tactile personality. There are some cool benefits to switching to mechanical too, even if you're not primarily using your keyboard for gaming.

First of all, they're really strong on customisation, meaning you can choose the look and feel that suits your needs and works best for you. RGB lighting seems to be a given on PC hardware these days but there's also the option to choose the type of switch – whether that's the staccato pops found in Razer Greens or the linear action of the Cherry MX Reds. But aside from the feel and look of your keyboard, you can also choose your preferred layout. If a standard 104-key layout isn't to your liking, you can always drop the numpad and go the 'tenkeyless' (TKL) route instead.



2



JARGON BUSTER

Actuation Point

The depth to which a key needs to be pressed before it registers as a press.

Clicky

A switch that delivers an audible click every time it's pressed.

Linear

A switch that moves directly up and down, delivering smooth keystrokes without noise or tactile feedback.

Mechanical keyboard

A keyboard built around individual switches for each key, rather than a membrane sheath mounted on a PCB.

Switch

The physical component of a mechanical keyboard beneath the keycaps on a mechanical keyboard. The switch determines how a key is actuated, whether or not it provides audible or tactile feedback with each press, and more.

Tactile

A switch that provides a 'bump' of feedback every time it's pushed.

Tenkeyless

A keyboard that lacks the right hand number pad.

1

Alloy Elite RGB

HYPERX **£120**

One of the most feature-packed keyboards available

1 A board that's packed with features and aesthetically delightful, HyperX's Alloy Elite RGB is a premium option for less than you'd expect. It's got a full suite of dedicated media keys including a large scrolling volume wheel, a detachable wrist rest, and a set of quick access keys that allow you set things like brightness or toggle on Game Mode with a single key press.

Available with a range of Cherry switches, from loud, clicky Blues to whisper-quiet Reds, the HyperX can be configured to suit almost anyone's typing/gaming style. It's loaded with the

seemingly requisite full RGB package, but still possesses a certain elegance with its matte black design and the option to replace the WASD and first four number keys with silvery keycaps. It's an appealing-looking board.

It's also a pleasingly rugged, durable board, with a solid steel frame. In other words, this is a board tough enough to withstand even your most outrageous mid-match tantrums...

PC GAMER VERDICT

- Lots of handy features
- Range of Cherry MX switches with different resistances
- Slightly clumsy software

SPECS SWITCHES: CHERRY MX RED, BROWN, OR BLUE / **SIZE:** FULL-SIZE / **BACKLIGHTING:** FULL RGB / **PASSTHROUGH:** YES / **MEDIA CONTROLS:** DEDICATED / **WRIST REST:** DETACHABLE

Huntsman Elite

RAZER **£200**

A hyper-responsive innovation

2 Razer's proprietary opto-mechanical switches, which are currently only available on their Huntsman and Huntsman Elite boards, are an interesting and well executed blend of technologies, an artful mix of traditional mechanical switch design and optical sensors not unlike the one probably lurking inside your mouse.

Instead of using the contact of metal leaves inside the switch to register a keypress, the opto-mechanical switch actuates when a beam of light passes through the stem as it descends. This means there's virtually no

actuation delay whatsoever, making the opto-mechanical one of the most responsive switches on the market.

The rest of the board shares the thoughtful design of its switches, allowing users to change the backlighting under each key individually. Other than its lack of an option for USB passthrough, an unfortunate oversight, it has all the features you're likely to need.

PC GAMER VERDICT

- Contains some of the best switches on the market
- Eye for detail and aesthetics
- No USB passthrough

SPECS SWITCHES: RAZER OPTO-MECHANICAL / **SIZE:** FULL-SIZE / **BACKLIGHTING:** 16.8 MILLION COLOR RGB / **PASSTHROUGH:** NO / **MEDIA CONTROLS:** DEDICATED / **WRIST REST:** DETACHABLE MAGNETIC





THESE NEW SWITCHES
ARE RAZER'S MOST
SPEEDY TO DATE

3

Huntsman TE

RAZER **£150**

A great tenkeyless option for typists and gamers

3 Adding to the growing litany of available switches out there, Razer has introduced a new red linear optical switch with the debut of the Razer Huntsman Tournament Edition. These new switches are Razer's most speedy to date, with a 1mm actuation point and optical sensor to register each keystroke. They're even faster than Cherry's MX Speed switches.

The Huntsman TE also features double-shot PBT (a harder type of thermoplastic) keycaps, giving them extra resistance against wear, and feature a bolder, easier to read

font. But a handful of drawbacks hold this keyboard back from greatness. The lack of dedicated media controls and number pad give the Huntsman TE its compact form factor, but prevent it from feeling truly feature complete. Also, while the linear switches make typing a much quieter affair than with the ultra-clicky switches, they are still far louder than most other linear options out there.

PC GAMER VERDICT

- ⊕ Double-shot PBT keycaps
- ⊕ Fast, Responsive switches
- ⊖ No wrist rest
- ⊖ Expensive for a tenkeyless

SPECS SWITCHES: RAZER OPTO-LINEAR / **SIZE:** TENKEYLESS / **BACKLIGHTING:** 16.8 MILLION COLOUR RGB / **PASSTHROUGH:** NO / **MEDIA CONTROLS:** FUNCTION KEY INTEGRATED / **WRIST REST:** NONE

K95 RGB Platinum

CORSAIR **£185**

A large, premium keyboard at a premium price

4 At the higher end of the mechanical keyboard price pool sits the Corsair K95 RGB Platinum, an excellent keyboard that's loaded with features on both the design and functionality fronts.

The standouts are six dedicated macro keys on the left side of the rugged aluminium alloy frame, full individually programmable key backlighting as well as a 19 zone top edge lighting bar, and gold contact Cherry MX Red switches with a very high 1.2mm actuation point.

These keys are ideal for spamming multiple times in fast paced, frenetic games, and the

entire board (which has a large, impressive footprint) is built to withstand the most furious play. It's also loaded with a number of other features, like dedicated media keys and a very comfy reversible wrist rest.

A USB lead for passthrough can tuck smartly into a dedicated channel underneath the keyboard so it stays nicely tucked away and doesn't add to the cable nightmare that always develops.

PC GAMER VERDICT

- ⊕ Sturdy aluminium alloy construction
- ⊕ Excellent suite of design and functionality features
- ⊖ Large form factor

SPECS SWITCHES: CHERRY MX RED, SPEED, BROWN / **SIZE:** FULL-SIZE / **BACKLIGHTING:** RGB / **PASSTHROUGH:** USB / **MEDIA CONTROLS:** DEDICATED / **WRIST REST:** DETACHABLE



BlackWidow Elite

RAZER £170

Brilliant design with thoughtful extras

5 Another excellent gaming keyboard offering from Razer, the BlackWidow Elite is a big, bold deck running the manufacturer's clicky, tactile Green switches. It's a great board for typing, but it's no slouch for gaming either. Naturally, being a Razer product, it comes with the requisite 16.8 million colour RGB backlighting, and each key is individually programmable. Even the media controls are lit, and include play/pause, fast forward, and rewind buttons as well as an excellent volume wheel that juts just slightly over the edge of the board, making it easy to adjust.

Even better are the subtle additional touches Razer has packed into it, like a 3.5mm audio passthrough alongside the more common USB passthrough, so you can plug headphones directly into the keyboard. There's also a channel underneath the board that the braided cable fits snugly into, so it's guided out of the way, which is convenient because it's a massive cord. Even the indicator lights are bright.

PC GAMER VERDICT

- + Razer's excellent Green switches
- + USB and 3.5 passthrough, cord management, and other handy extras
- Cord is massive and cumbersome

SPECS SWITCHES: RAZER GREEN, ORANGE, OR YELLOW / **SIZE:** FULL-SIZE / **BACKLIGHTING:** 16.8 MILLION COLOUR RGB / **PASSTHROUGH:** YES, USB AND AUDIO / **MEDIA CONTROLS:** DEDICATED / **WRIST REST:** BUILT-IN

G Pro X

LOGITECH £130

The best mechanical keyboard for analysis paralysis

6 The Logitech G Pro X is a reimagining of the original G Pro tenkeyless design. Virtually nothing has changed here, with a small exception, that you can now swap key switches. Logitech has fully embraced hot-swappable PCB designs, allowing you to change the types of switches you use on their keyboard with relative ease. Because of their general uniformity, you can use just about any aftermarket key switch you'd like on the G Pro X. However, due to small differences in switch manufacturing sizes, it's

recommended that you use Logitech's switches, which are offered in linear, tactile, and clicky varieties. This is the first time we've seen this feature outside of the DIY market, and it is certainly a welcome and interesting way to shake things up with a tried and tested design. Other features include a removable microUSB cable and programmable RGB lighting, plus 12 programmable macro keys.

PC GAMER VERDICT

- + Simple, elegant design
- + Hot-swappable Romer-G switches, possible to use other brands
- Light on features

SPECS SWITCHES: LOGITECH ROMER-G BROWN, RED OR BLUE / **SIZE:** TENKEYLESS / **BACKLIGHTING:** RGB / **PASSTHROUGH:** NO / **MEDIA CONTROLS:** FUNCTION KEY INTEGRATED / **WRIST REST:** NONE

A worker inspects a wafer at one of TSMC's 12in wafer fabrication plants.

TO THE EXTREME!

New chip manufacturing methods give smaller and smaller results

For many decades now we've been melting sand and making it think. The current photolithography process for making microchips, such as the CPU and GPU inside your PC, dates back to around 1977, and involves painting light-sensitive chemicals onto a wafer of silicon, then shining UV lasers through a mask so that they mark the chip's pathways into the chemical, then a bath in something nasty that dissolves the top layer of silicon not protected by photoresist. The process has been evolving, but now it's starting to reach the end of its useful life.

Why? Because chip pathways are, if you believe the PR exhalations of chip manufacturers, now as small as 7nm across. They're not, of course, as the nanometre measurements are more like marketing terms these days and don't represent any part of the chip size, they're just a naming convention that has stuck.

They are, however, really, really small, and 7nm represents a shrinkage over the previous technology node, 10 or 14nm. Gate sizes also differ between manufacturers, but for the 10nm process are usually in the range of 30-40nm.

The single crystal of silicon the chips are etched into is another marvel, but its discovery dates back to 1916, when a Polish chemist called Jan Czochralski, studying the

crystallisation rates of metals, dipped his pen into a crucible of molten tin rather than the inkwell he was aiming for. The pen sucked up the tin, and the filament produced was shown to be a single crystal. Later experiments showed that by doing something similar you can create industrial quantities of single-crystal semiconductors.

As technology nodes shrink, transistor gate density increases, chip manufacture gets harder and new processes are needed to keep up. Enter Extreme Ultraviolet Lithography, the process being used for some 7nm chips as the current Deep Ultraviolet Lithography process is wound up, and which will become standard as we enter the worlds of 5nm and even 3nm. The wavelength of ultraviolet light runs from about 400nm down to 10nm, spanning the gap between visible light and X-rays in the electromagnetic spectrum. The extreme ultraviolet is considered to be anything with a wavelength less than 124nm, and it's a difficult type of light to emit.

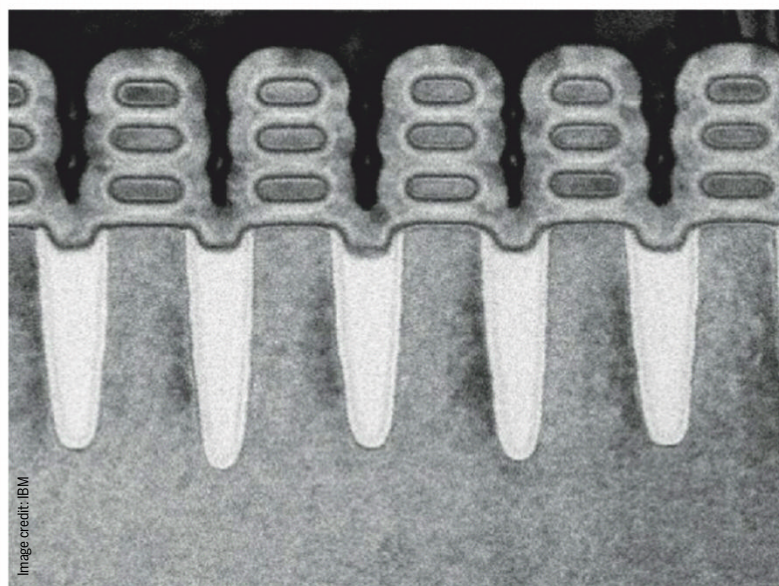
Firstly, you need charged particles – ions – as neutral matter cannot emit EUV light. Such ionised matter is commonly known as a plasma, but there's a catch – plasma absorb EUV light and, due to electrons in the plasma neutralising the ions, a great deal of other light is produced. This means that the lasers used to create the plasmas need to be much more intense than for previous processes.

From the laser-pumped tin plasma that is commonly used to create the EUV light for chip manufacture, as little as two



Gas lenses

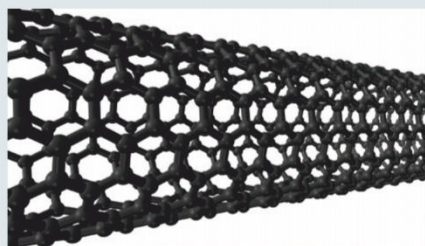
One problem with EUV light is it's readily absorbed by just about anything, be it lenses, mirrors, or plasma. Researchers at Germany's Max-Born-Institut think they've cracked it, by making a lens out of jets of helium or argon that can focus and bend the light depending on how dense they are, without absorbing it.



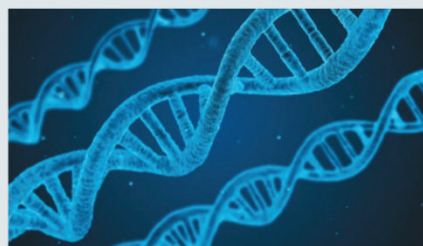
FAR LEFT: A scan of IBM Research Alliance's 5nm transistor, built using an industry-first process to stack silicon nanosheets as the device structure.

LEFT: Production and cleanroom facilities at work in Intel's D1D/D1X plant in Hillsboro, Oregon, which makes chips on 14, 10 and 7nm processes.

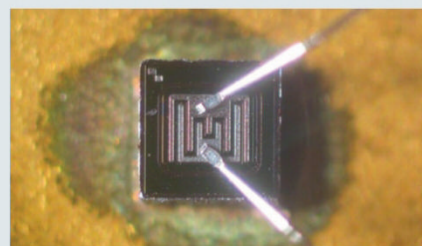
TEENY TINY *Other things measured in nanometres*



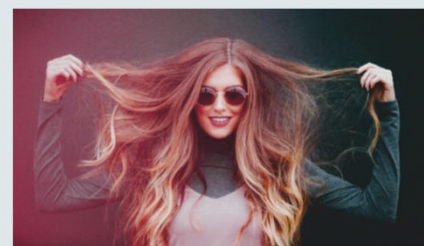
1 CARBON NANOTUBE
A single-walled carbon nanotube measures just one nanometre across. They are ten times as strong as regular carbon and also have great tensile strength and thermal conductivity.



2 DNA MOLECULE
A molecule of DNA is 2.5 nanometres across and about 5 centimetres long. If harnessed for data storage, a single gram could hold 1 zettabyte (9.7 billion terabytes) of data.



3 CPU TRANSISTOR
On Intel's 14nm process, the gap between transistor fins, and therefore between gates, is around 70nm. These have been used in Apple's MacBooks and MacBook Pros.



4 HUMAN HAIR
Ranging from 50,000 to 100,000 nanometres across, the human hair has no computing or data storage capabilities we know of. If it did, barbers would be raking it in.

per cent may actually make it to the face of the silicon wafer once it has been bounced through a series of mirrors that, helpfully, also absorb the EUV.

It's enough though. Owners of very recent Huawei phones with Kirin 990 5G (TSMC, 7nm) chipsets, or the 7nm Exynos 9825 in Samsung's Galaxy Note 10, are already benefitting from the lower power requirements and smaller chip footprints that the tighter process brings.

CIRCUIT TRAINING

So now you're finished firing lasers to make plasma glow, what do you do to etch the circuits mapped out by the photoresist? You have to use a bit more plasma, of course.

First, a solvent is used to remove some of the photoresist that wasn't exposed to the EUV light. Then the silicon wafer is baked at anything up to 180°C for as long as 30

minutes, depending on the process being used. Then it's dunked in plasma (this is known as a 'dry' process, as opposed to wet liquid chemicals) to remove the top layer of the wafer in areas not exposed to the EUV light. Then the remaining photoresist is removed with a chemical stripper.

The shrinking of chip pathways was probably most clearly seen during Intel's 'tick-tock' years, where the CPU giant would release a new architecture on a familiar process one year, then shrink it to a new, smaller, technology node the next year, fixing a few things as it went and calling it a new generation. So for every Sandy Bridge we got an Ivy Bridge, all the way up to Skylake, where they stalled. The same 14nm

process introduced with Broadwell (a shrink from Haswell's 22nm node) was used for Skylake, Kaby Lake, Amber Lake, Whiskey Lake, Coffee Lake, Cascade Lake, and Comet Lake.

The last of those is being sold today as part of Intel's 10th Generation Core chips, a hugely confusing choice as '10th Gen' also includes Ice Lake chips built on a 10nm process and a new architecture – Sunny Cove. Meanwhile AMD won the war of the little numbers by getting a 7nm chip into production with Zen 2 (Ryzen 3000).

This obviously can't go on forever. Eventually, transistors will shrink to the point that they no longer function, or that it's no longer possible to etch them with exotic lights and

chemicals. One avenue of future development is the photonic circuit, which uses light instead of electricity.

Within a chip, photons travel up to 20 times faster than electrons, so making the switch would have immediate benefits. Then there are some

alternate materials, such as carbon nanotubes (see boxout), that could replace the silicon itself.

Make a transistor too small, and quantum effects start to affect the way it works – electrons tunnel out of the gate they're meant to be in and into another. The smallest ever transistor, made in 2016 by Lawrence Berkeley National Laboratory, shows that traditional silicon chip manufacturing only has a few generations left in it, and this means new solutions should begin to be tested any time soon. Don't expect them to filter down to consumer level right away, but it's an exciting time nonetheless. ■

Ian Evenden

**WITHIN A CHIP, PHOTONS
TRAVEL UP TO 20 TIMES FASTER
THAN ELECTRONS**

YOUR NEXT PC

BUYER'S GUIDE

Build the best PC for your budget



KEY

Budget build

PC gaming is for everyone. Pick the parts you want to build a new, well-rounded PC for a good price.

Mid-range build

You want to run every new game at 1080p 60fps. This recommended build will see you through.

Advanced build

You're looking for the best PC on the market and superior components. But you still want to spend smart.

BUDGET BUILD

Enjoy 1080p gaming without breaking the bank



TOTAL
£1,072

MOTHERBOARD		B360M-HDV ASRock £63 ASRock's B360M board definitely qualifies as 'no frills', but it'll still get the juice out of your CPU without bottlenecks.
PROCESSOR		Core i3-9100f Intel £70 An incredibly nippy quad-core CPU for the price, Intel's 9th gen budget chip skips integrated graphics for affordability.
GRAPHICS CARD		GeForce RTX 2060 GAMING EVGA £320 Compact, great value, and part of NVIDIA's latest GPU generation, this EVGA model is the budget gamer's best friend.
COOLER		Hyper 212 Evo CoolerMaster £25 Even a budget build can benefit from a good CPU cooler, letting you enjoy a quieter, cooler system.
MEMORY		Vengeance LPX 16GB Corsair £57 16GB of RAM gives you plenty of breathing room when running multiple programs, and Corsair's selling this kit cheap.
POWER SUPPLY		CX-M Series CX550M Corsair £55 A UK price spike in our previous EVGA 500W pick opens the door for this quiet Corsair option.
SSD		MX500 250GB Crucial £50 Crucial's SSD range is fantastic value and offers good performance, too. A 250GB drive can hold your OS and essential programs.
HDD		WD Blue 1TB 7200RPM Western Digital £34 One terabyte of old-fashioned hard storage is the perfect home for all of your media, backups and storage-hungry games.
CASE		Neos Bitfenix £36 The Neos provides decent airflow, good support for 3.5-inch hard drives, and a fairly painless build experience.
DISPLAY		Optix MAG271C MSI £239 MSI packs huge value into this. You will have to start blaming your k:d on your broadband instead of your refresh rate though.
KEYBOARD		BlackWidow Lite Razer £65 Silent and deadly as its namesake, this BlackWidow board from Razer is a joy to type on. No number pad though, be warned.
MOUSE		Basilisk Essential Razer £30 Razer's 'essential' line conjures images of supermarket own-brand cereal, but this affordable Basilisk performs brilliantly.
HEADSET		HS35 Corsair £28 Deceptively luxurious for the price, Corsair's budget cans offer comfort and powerful low-end. Also colours. Very bright colours.

MID-RANGE BUILD

Our recommended build for playing the latest games



TOTAL
£1,631

MOTHERBOARD		X470 PRIME X470-PRO Asus £132 Tasteful RGB (if that's your thing) and substantial heatsinks make this a fine base for any AMD build.
PROCESSOR		Ryzen 7 3800X AMD £289 Once our top-end pick, AMD's Ryzen 7 is still as formidable but now realistic for mid-range builds, too. What a time to be alive.
GRAPHICS CARD		GeForce RTX 2060 Twin Fan Zotac £320 Serious power from the 'just about affordable' end of Nvidia's new GPU fleet, and it's ray tracing-ready too.
COOLER		Hydro Series H55 Quiet Edition Corsair £55 Tidy and quiet, the H55 will unlock our CPU's overclocking potential and look good through your case window while it does so.
MEMORY		Vengeance LPX 16GB (2x8GB) @2666 Corsair £67 16GB is the minimum amount of RAM we'd recommend for a system of this calibre.
POWER SUPPLY		CX 650W Corsair £62 It may not feature fancy modular design, but Corsair's reliable CX 650 is cheap enough to accommodate for our other part picks.
SSD		Evo 860 250GB Samsung £50 Samsung's Evo series has long been a stalwart of nippy r/w speeds and reliability, and this 250GB drive is very affordable.
HDD		WD Blue 1TB 7200RPM Western Digital £34 SSDs are great, but they're still far from cheap. This 1TB HDD will hold as many games as you will need.
CASE		Eclipse P400S TG Phanteks £73 The clean lines, intuitive build features and fantastic price cements the Eclipse as our mid-range case of choice.
DISPLAY		Predator XB271H Acer £330 G-Sync and up to 180Hz of overclocked refresh rate – Acer's 27-inch Predator is quicker than a S1mple AWP peek.
KEYBOARD		One Ducky £100 A lesser known keyboard brand with a great rep among mechanical switch nerds. Ducky delivers the goods with the One.
MOUSE		Model O Minus Glorious £45 The lightest gaming mouse in production and one of the most responsive and comfortable out there. Look at those holes!
HEADSET		HyperX Cloud Kingston £74 Despite the budget price, we recommend this headset. There's simply nothing better for the money.

ADVANCED BUILD

Go above and beyond with a PC powerful enough to end worlds



TOTAL
£3,866

MOTHERBOARD		ROG Maximus XI Code Asus £350 Immense overclocking potential, and a look that's barely even recognisable as a motherboard. Space-age PCB tech.
PROCESSOR		Core i9 9900K Intel £480 Intel's new 5.0GHz, 8-core monster rules the roost in the CPU market. And it comes in a fancy nine-sided box too, so there's that.
GRAPHICS CARD		GeForce RTX 2080Ti Black Edition EVGA £1,049 EVGA's custom design is considerably cheaper than Nvidia's reference card, and with great cooling.
COOLER		Kraken X62 NZXT £126 The Kraken is the culmination of three of our favourite things: an infinity mirror, a 280mm radiator and slick braided cooling.
MEMORY		Vengeance RGB Pro DDR4-3200 Corsair £155 Faster than you could ever reasonably hope to make use of unless you plan to edit three 4K movies at once, plus all that RGB.
POWER SUPPLY		HX750i 80 Plus Platinum Corsair £148 Modular, custom cable kits, and a platinum efficiency rating. What's not to love about this Corsair PSU? Nothing, that's what.
SSD		XPG SX8200 Pro 1TB ADATA £120 A whole terabyte of M.2 storage with blistering read/write speeds, just waiting to be filled with Steam games you'll never play.
HDD		WD Blue 4TB Western Digital £87 With a large boot SSD, there's little need for a large, cheap SSD. Instead we've opted for a huge 4TB hard drive for all your bulk data.
CASE		Enthoo Evolv ATX TG Phanteks £135 The 5mm thick aluminium panels resonate with svelte professionalism, and the interior makes building inside this a dream.
DISPLAY		AW3418DW Alienware £840 34 inches of curved, beautifully presented 120Hz display with the added benefits of G-Sync. One for aesthetes and athletes alike.
KEYBOARD		G915 Lightspeed Logitech £160 Those low-profile keys feel like taking your fingers figure-skating. It's wireless too, so that's the cable jam dragon slain.
MOUSE		G502 Lightspeed Logitech £95 The Lightspeed is the very latest edition of Logi's loveable G502, and while it might look familiar nearly all internal parts are new.
HEADSET		Kraken Ultimate Razer £130 Thundering bass that doesn't impinge on clarity, plus a mic your Discord mates will definitely notice. In a good way.

EXTRA+LIFE

CONTINUED ADVENTURES IN GAMING

The less-fun version of an arcade.



“Your flashlight is your most trusted resource for popping giant eyeballs”

But the monsters in **Gylt** aren't just monsters – they're childhood bullies

If you've ever had a nightmare about your hometown turning into something macabre and barely recognisable, that's *Gylt*. The town is devoid of life. Abandoned cars litter the cracked and crumbling streets. Humanoid monsters with boils on their black skin wait for you around every corner. And you play as a little girl named Sally in this *Stranger Things*-esque world trying to save your cousin, Emily, from the creatures hell-bent on destroying her and you.

Gylt is a Google Stadia exclusive that I've been chipping away at ever since I completed my review for the platform back in November. Google

JOANNA NELIUS



THIS MONTH
Slew monster bullies with a flashlight.

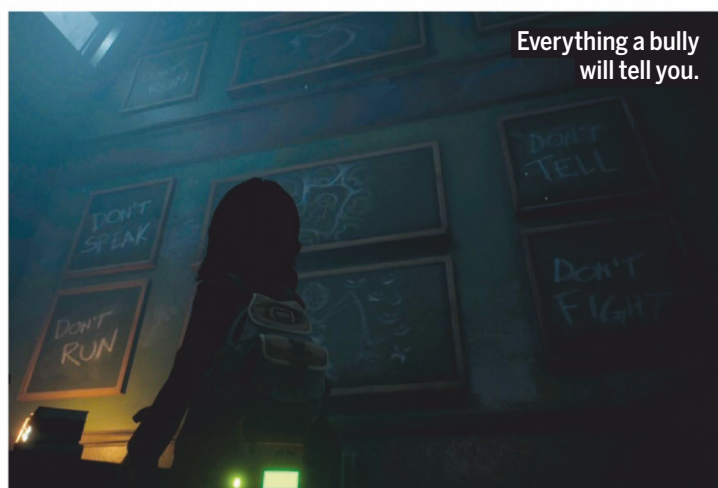
ALSO PLAYED
The Outer Worlds

hasn't said when it will offer free subscriptions to its service, so if you want to play it, you'll have to pay the Stadia Pro monthly subscription fee plus the cost of the game. (You don't need a Chromecast and a Stadia controller to play it on PC, but you can only get Google Stadia if you purchase the Founder's Edition which costs \$129 for the controller and a Chromecast.) What's more unfortunate is that Tequila Works

currently has no plans to bring its game to other platforms.

It's a shame, since *Gylt* is a well-balanced mix of stealth, puzzle solving, and direct confrontation, with a good story. Your flashlight is your most trusted resource for popping giant eyeballs and fighting off monsters, but there are also strategically placed vending machines that dispense free soda should you want to try the old 'look over there' trick. It's not a complex game by any means, but it's thick with tension and

IT DRIVES HOME THE IMPORTANCE OF STANDING UP FOR THE KID WHO IS BULLIED



Everything a bully will tell you.



Sometimes, one person is all it takes.

a few jump scares – though nothing that will induce a heart attack, as it's more of a horror-lite experience.

FEAR FACTOR

Gylt is a game about what it's like to be bullied. The school, where you spend most of your time searching for Emily, is a grim visualisation of just that. At a table in the back of the cafeteria there are a few mannequins posed around one sitting on the bench, pointing and laughing at it. Classrooms are filled with red and black graffiti taunting you to 'get lost' and 'don't tell'. And as you get closer to finding Emily, you can make out words in between her screams.

For me, it was the moments I spent crouched behind a desk that made me remember the time I would try to avoid the kid who liked to bully me during break time. I would hide in the bathroom or try to sit close to the playground supervisor. *Gylt* plays up the terror of being a child who gets made fun of every day, but it also does more than that – it drives home the importance of standing up for the kid who is bullied. The idea of fighting off the monsters (aka the bullies) with light is romanticised, but you are the only one who is coming to Emily's rescue – and sometimes all it takes is one person to stand up for someone else. Yes, it's scary, but it's the heroic thing to do. ■



“Games are in need of more strangeness”

Embracing the odd in **SIX AGES: RIDE LIKE THE WIND**

▶ ROBIN VALENTINE



THIS MONTH
Learned how to make friends via the gift of livestock.

ALSO PLAYED
XCOM 2: War of the Chosen

From the very first moments, this largely text-based game puts me on the back foot. Superficially, it's a game about managing a settlement in a fantasy land, making sure all of your citizens are safe, warm and well-fed. But almost immediately, it reveals itself to be much stranger than that implies.

Before you even begin, you have to choose an origin story for your clan, picking from multiple options at different points in their history. These choices are largely baffling, steeped heavily in the game's unique setting. I scrape together crumbs of lore as I go – gods are very real, their power can be invoked by physically reenacting old myths, but most of them are asleep I think? And my clan's patron deity is the god of a specific species of beetle used to make red clothing dye?

As I get into the game proper, it becomes clear that more than being a challenge of farming, building, and the rest, it's an ongoing test of how well I can understand and work

within a culture totally unlike my own. Events are triggered as I play, in which something happens and I'm invited to make a choice about it. Far from being familiar moral decisions, they frequently revolve around the clan's very specific customs and traditions, and how they apply to often bizarre situations.

AGE APPROPRIATE

What's the least embarrassing way to disperse a flock of magical birds that keep whispering in your shaman's ear? Is a polished buzzard beak an appropriate bride-price? How many cows is a fair exchange for the spirit of a sabre-toothed tiger? Fair questions. I wish I knew the answers.

I won't lie, it's overwhelming. But at the same time, such a commitment to its weird world is refreshing.

To my mind, videogames are in dire need of more strangeness. For a medium so steeped in sci-fi and fantasy, and where the impossible takes no more effort to represent than the real, it's disappointing to me how much time we spend stuck with tired old tropes. Shooting zombies, chopping up orcs... repetition has made the fantastical bland.

So while I am struggling to get to grips with it, I'm also intrigued. Given the choice of learning the backstory behind yet another war between the forces of light and darkness, or figuring out the correct wife-to-buzzard-beak exchange rate, I know where I want to spend my time. ■



“I am a rat, feasting on the remains left behind by more skilled players”

In **ESCAPE FROM TARKOV**, there's little room for honourable combat

I am not a brave man. Where *Escape From Tarkov*'s battle-hardened veterans will actively look for a fight, I flinch at even the most distant sounding gunshots, scurrying from bush to bush and outright avoiding the most well-trafficked areas unless I absolutely have no choice. In the grand food chain of *Escape From Tarkov*, a hardcore mil-sim survival shooter about looting gear in a post-apocalyptic Russian city, I am not a bear or a tiger. I am a rat, feasting on the remains left behind by more skilled players. And I kind of like it that way.

Though *Escape From Tarkov* has much in common with both survival games like *DayZ* and battle royales such as *PlayerUnknown's Battlegrounds*, it manages to feel like some kind of mutant hybrid between the two. I still slink through bushes, intently listening for the sound of nearby players who will certainly try to kill me and take all my gear, but instead of taking place in a persistent open world, *Tarkov* drops you into smaller maps and gives you a time limit to reach the opposite side. If you

▶ STEVEN MESSNER



THIS MONTH
Laid ambushes on players he couldn't kill.

ALSO PLAYED
World of Warcraft,
League of Legends

make it out alive, you get to keep everything you found to use in the next round. It reminds me a bit of *EVE Online*, where I'm constantly gambling my best equipment and hoping I live to fight another day. Often I don't.

RAT'S OFF

But when I do it's almost always because I channelled my inner rat. I stick to the shadows, letting players kill one another off and take the best loot, and then I make my move.

It's a playstyle that would never work in *DayZ* or *PUBG*, where the map is either too large to reliably find other players or the main objective is

to be the last man standing, so I might as well be aggressive about it. But in *Tarkov*, one of my favourite things to do is camp in the exfiltration zones and ambush players just as they think they're so close to safety. I'm a bit of a diabolical asshole, but the sheer joy of letting someone else do all the looting only for me just to take it from them at the last possible moment is too sublime not to indulge in.

Just behind the three-story dorms on Customs is my favourite spot. Here, players can pay 7,000 rubles to exfiltrate to safety, which is a hell of a deal considering the dorms are one of the best loot spots on the map. Players get in, clean it out, and then only have a 30-foot jog to the exit. But that's exactly where I wait. Tucked behind a tree, sights pointed on the doors that open towards the exfiltration zone.

Just as the timer begins to run low is when players drop all semblance of caution and sprint for the exit, and just as they're so close – 30 minutes of effort well rewarded – I pop them in the skull and take everything.

It's certainly not the most honourable way to make a living in *Tarkov*, but I'm so flush with rubles I don't even care. ■

JUST AS THEY'RE SO CLOSE, I POP THEM IN THE SKULL AND TAKE EVERYTHING

“I feel like a Jedi – albeit a bit more like the work experience Padawan”

Learning to love laser wizards again in **STAR WARS JEDI: FALLEN ORDER**

Liking Star Wars is like being the coveted child in a custody battle. My Last Jedi dad insists the things I love are bad for me and has replaced my Coke with kombucha. My Rise of Skywalker mum is responding by feeding me energy drinks until I resemble a taurine-fattened mallard. I loathe them both. Can *Fallen Order* fix me?

Not initially. It won't launch on Steam, so I have to download it twice and try again with Origin open – the sort of frustrating false start that feels like trying to tear a new sheet on cheap toilet roll. It works eventually – I have no idea how – and *Fallen Order* finally gets off to the start I longed for. Stirring music, twisted metal structures, and soaring flybys all make me realise how low my bar is when it comes to Star Wars. Show me some mangled Venator-class Star Destroyers and I'm entranced; drop in a Separatist Control Ship and I'm yours forever. It's a properly brilliant intro: sweeping and cinematic, with enough narrative set-up to make me care about Cal having to leave his old world behind. I can even forgive the

MATT ELLIOTT



THIS MONTH
Discovered his own difficult Origin story.

ALSO PLAYED
Total War Saga: Thrones of Britannia, *Tricky Towers*

use of “Press [F] to use The Force”, perhaps the clumsiest on-screen prompt since we all paid our respects in *Advanced Warfare*.

So far, so wonderfully daft. The environment shears and collapses in a way that always leaves me with something to climb – perhaps that's The Force – and Stormtroopers panic as I hack them down. But it's also stern. Melee combat is punishing when I get the timing wrong, and that makes things more rewarding when they go right. The combat is flashy enough to make Darth Maul look like a wheezy pensioner, and there's nothing quite like deflecting

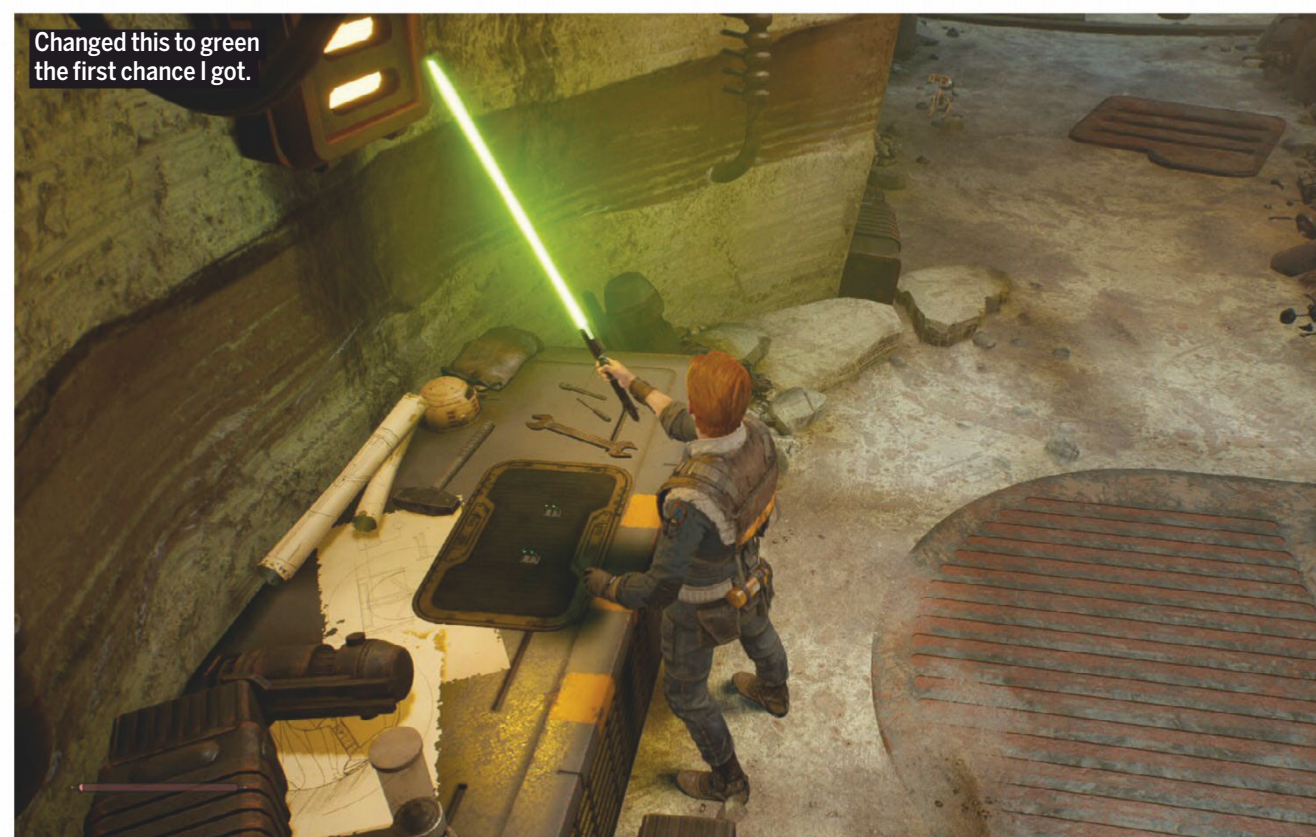
blaster bolts back at grunts dim enough to shoot at me. I already feel like a Jedi – albeit a bit more like the work experience Padawan who still has to serve the masters blue milk.

DAY SABER

I just want to guzzle it all down like a rich cosmic smoothie. I love locking lightsabers with the Imperial Inquisitor. I take the time to stop and listen to the sound of the alarms of Rebel spaceships – gentler than their Imperial counterparts (“Yes, we are going to die, but please try not to panic”). And I devour all the little touches that feel like the work of informed, invested creators. How come no game until now has let me light dark places with my lightsaber? I can even forgive Cal for crimping out melodies on a hallikset.

Most of all, there's a sense that however much I love or hate what Star Wars is doing at the cinema, there's enough care and attention elsewhere to make me forget. *KOTOR* was my first proper experience of the expanded universe, and while I don't feel like I've come full circle with *Fallen Order*, it's good enough to make me realise it's the operatic sci-fi world I love most. ■

I JUST WANT TO GUZZLE IT ALL DOWN LIKE A RICH COSMIC SMOOTHIE





QUAKE II RTX

The classic FPS gets an incredible new look. *By Andy Kelly*

If you've been itching to replay *Quake II*, this RTX edition of the game – a project by NVIDIA-owned LightSpeed Studios – is the perfect excuse. It's the same game you love, but with added real-time reflections, volumetric lighting, global illumination, and other visual upgrades designed to show off NVIDIA's RTX series of GPUs.

It makes heavy use of real-time ray tracing, a rendering technique that can produce incredibly realistic lighting effects. Basically, an algorithm traces the path of a light source, then simulates the way that light interacts with virtual objects – whether it's a glass window or a pool of water. And the results can be amazingly photorealistic. Only a few games have support for ray tracing at the moment, but NVIDIA has already made it a flagship feature of its latest range of graphics cards.

Ray tracing has existed in various forms for decades. In 1982, a team of 50 students from Osaka University's School of Engineering, led by professors Ohmura Kouichi, Shirakawa Isao, and Kawata Toru, implemented the technology in its LINKS-1 supercomputer. But now computer technology has advanced to the point where it's possible for a

NEED TO KNOW

RELEASE June 2019	DEVELOPER LightSpeed Studios
PUBLISHER NVIDIA	LINK bit.ly/2OxqaKO

home PC to use it. Even consoles are getting in on the action, with the Xbox Series X and PlayStation 5 reported to have dedicated ray tracing hardware.

Quake II RTX is currently free on Steam, complete with three levels from the shareware edition of the game – which was featured on many a PC Gamer cover disc back in the day. But if you own *Quake II* (it's currently £5 on Steam) and have it installed, you can play through the whole game from start to finish. And it's worth it, because the final battle with the Makron looks particularly cool with this new lighting system. However, to enjoy these fancy new effects you will need a compatible NVIDIA graphics card from its growing RTX range.

I revisited *Quake II* recently for our Reinstall regular, and was pleasantly surprised by how playable it still is. Those weapons feel great – especially the railgun, which remains one of the greatest FPS weapons of all time. Watching that coil of blue smoke swirl towards an enemy, and a splash of gibbs at the end of it, is

immensely satisfying. But I did find it almost overwhelmingly brown, with a lack of variety in the environments and a grimly muted colour palette throughout. The level design is great, but Stroggos is not a particularly interesting setting.

In *Quake II RTX*, Stroggos is still harsh, industrial, and bleak. But the new reflections, surface materials, and lighting effects make it a lot easier on the eye. When I first heard about this version of the game, I thought applying modern graphics tech to low-poly models from the '90s was a strange way to show off what RTX cards were capable of. But, in motion, it really works.

I was impressed when I fired my railgun across a pool of water and saw its swirling blue trail reflected and distorted on the surface. Shafts of sunlight stream through windows, casting realistic shadows. Lava emits a warm, fiery glow. Explosions



RAY TRACING HAS EXISTED IN VARIOUS FORMS FOR DECADES

dramatically light up the room. It makes those formerly flat, lifeless corridors feel incredibly dynamic and alive, and it's surprising how much it transforms the feel of the game.

NINETIES NOW

I've always found games that mix retro assets with realistic lighting really appealing to look at – a recent example being *Octopath Traveller*, which added realistic lighting and shadows to a SNES-style throwback RPG. And *Quake II RTX* appeals to me in the same way. A few of the weapon models have been updated, but the enemies are still those same lumpy freaks we shot back in '97. But with realistic light cast over them, they look great.

This version of *Quake II* is only the beginning, it seems. Last year, NVIDIA posted a job listing for a producer to lead an unnamed RTX remaster project. Apparently Lightspeed Studios is working on a title that we "know and love", whatever that may turn out to be. Having seen the dev's amazing work on *Quake II RTX*, I'm eager to find out what it is. ■

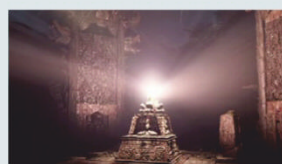
MIRROR IMAGE *The best examples of ray tracing so far*



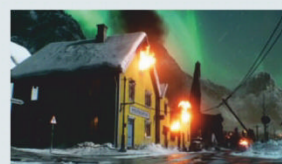
METRO EXODUS
This post-apocalyptic road trip was already beautiful to look at, but the addition of ray traced global illumination really elevates the visual fidelity of those bleak, radiated landscapes.



CONTROL
The shiny floors and eerie atmosphere of the Oldest House are the perfect showcase for ray tracing. *Control's* use of the tech is seriously impressive, with some amazingly realistic reflections.



SHADOW OF THE TOMB RAIDER
The use of ray tracing here is most prominent, appropriately, in its tombs, with light sources such as flickering braziers and candles casting realistic moving shadows.

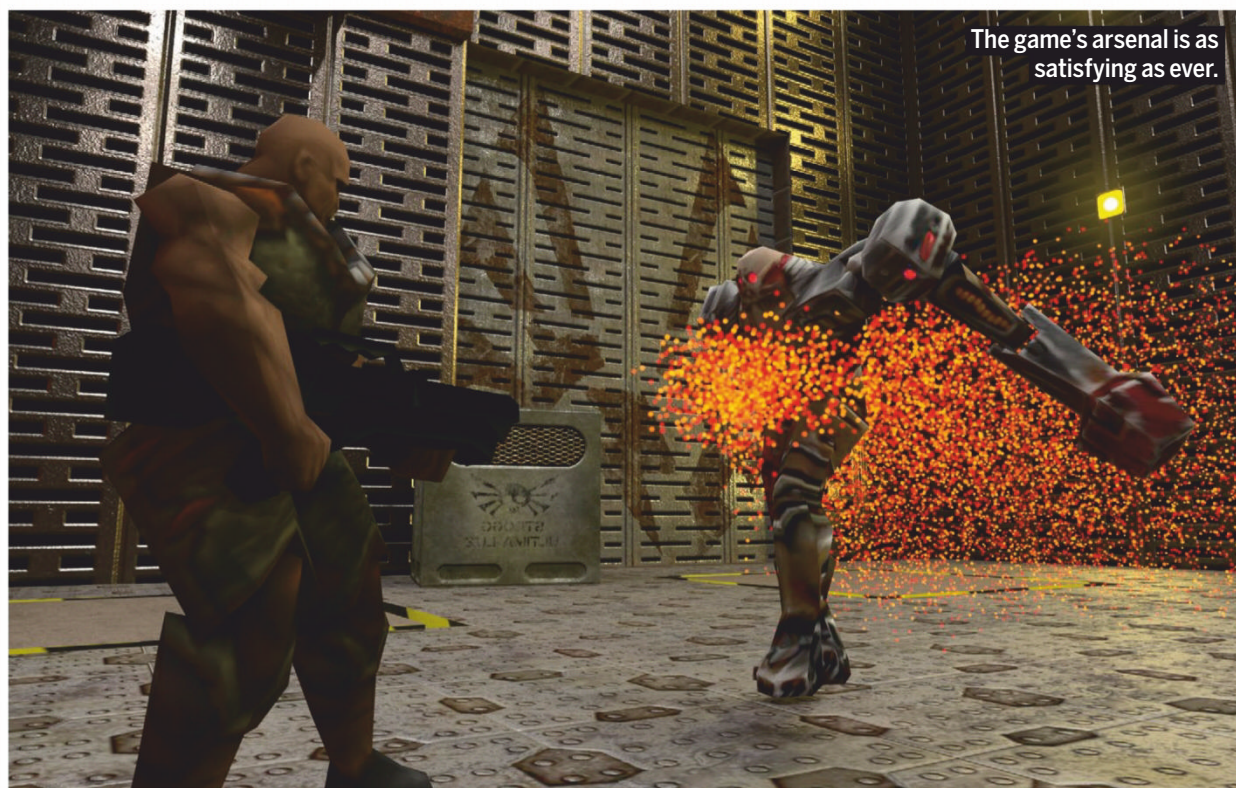


BATTLEFIELD V
If you want to experience the next generation of puddles technology, just play *Battlefield V* with ray tracing on. The way the world is reflected in the water of a flooded trench is truly stunning.

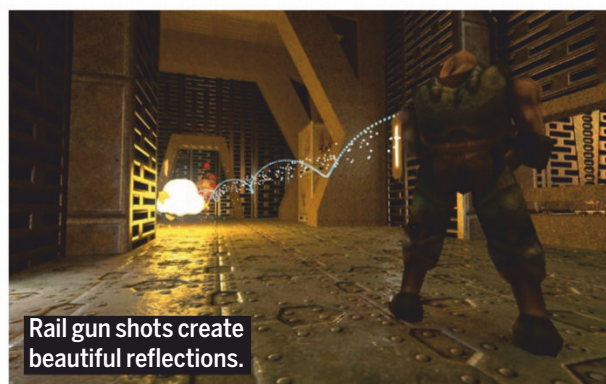
The latest tech breathes new life into an iconic classic.



The game's arsenal is as satisfying as ever.



Rail gun shots create beautiful reflections.



Gibs just never get old, do they?

The community garden looks tidier than any allotment I've ever seen.



The way to a farmer's heart is efficient equipment.





STARDEW VALLEY EXPANDED

Bringing surprises back to Stardew. *By Lauren Morton*

When I installed the *Stardew Valley Expanded* mod, I hadn't played *Stardew* in several months. I'd yet to try the enormous 'everything' update that added a plethora of new items, crops, clothes and bug fixes. If I were to succinctly explain *SVE's* level of quality: I didn't know the difference between what had been added in the official update, and what was part of the mod.

Stardew Valley Expanded, true to its name, does what a proper expansion can for any other game. It adds new characters, new locations, events, and feels like it could have been a part of *Stardew Valley* from the start.

I start a new farm and, having apparently evaporated every ounce of creativity in my body, name it the Expanded farm. I'll remember which is my modded save file, at least. After all the usual introductions, I plant my allotted starting parsnip plants and immediately set out hunting down *SVE's* new townsfolk.

One of the first quests in *Stardew Valley* is introducing yourself to all the locals. My first day of *SVE*,

though, I quickly find myself lost. The mod doesn't just add new areas, it reimagines existing ones.

FORAGING FOR FRIENDS

I walk through town, looking for fresh new faces, and am almost immediately turned around. Like a stair step that's just a quarter inch too short, I feel myself suddenly off balance. I walk into the house that Alex the athlete shares with his grandparents, dumbfounded because I thought I was at Mayor Lewis' place. It takes a few circuits of the

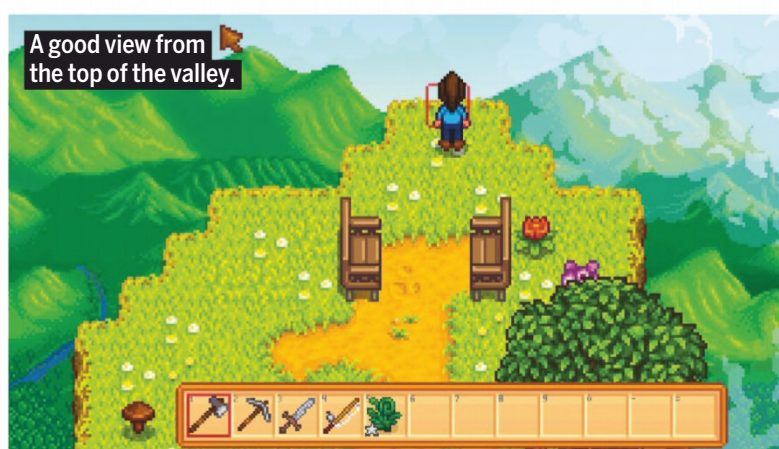
THE MOD DOESN'T JUST ADD NEW AREAS, IT REIMAGINES EXISTING ONES

town for me to find my bearings and get used to the new layout.

I introduce myself to the pink-haired young woman named Sophia who seems to run a winery west of the beach. I find Andy, a local forage farmer who is apparently a fan of the local JojaMart and sporting a blue Joja cap to prove it. Beside Pierre's grocery store is a huge new house with a gate where a young man named Victor and his mother Olivia live. Victor has just returned from university and hasn't landed a job yet while his mother is a retired Joja Co bigwig. Susan, another local farmer, lives up north by the train tracks.

At first glance, all of *Stardew Valley Expanded's* new characters have their archetypes cranked up to 11. Compared with *Stardew's* main cast, who represent slightly more timeless expressions of tropes, *SVE's* new characters are a bit more extra.

Cute but shy Sophia is a pink-haired, choker-wearing cosplay



QUALITY PEARS *Mods to go with Stardew Valley Expanded*



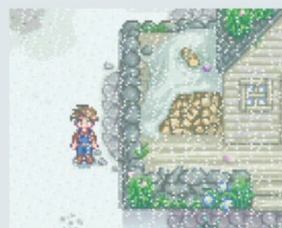
SEASONAL VILLAGER OUTFITS

For a bit of flavour, this mod changes every NPC's outfit for each season. No more cold shoulders in winter!



DYNAMIC NIGHT TIME

This mod gives a more varied light cycle to *Stardew* with dawn and dusk lighting at their appropriate times.



CLIMATES OF FERNGILL

The climates mod adds new weather patterns and types, including blizzards and something called 'thundersnow'.



NPC MAP LOCATIONS

You'll never lose track of a character you need to talk to with their face on your map showing where to find them.

» maker and tabletop game player which, on paper, sounds a bit like a self-insert fanfiction character. Andy is a middle-aged religious farmer with a gruff attitude and obligatory overalls. They're archetypes that feel a lot more now than *Stardew*'s original characters, who could be from any decade in the last 50 years.

They may be extra colourful (literally, in Sophia's case) but *SVE*'s creator has taken great pains to make them belong in the valley. You'd probably struggle to pick them out as modded if you were playing *Stardew* for the first time.

As another of the vaguely university-aged residents, Victor is friends with Sam, Sebastian and Abigail. I find him hanging out around the billiards table in the Stardrop Saloon on Friday evenings with the rest of the gang. Andy attends Sunday worship at the Yoba shrine inside Pierre's store along with George. All of *Stardew Valley Expanded*'s new characters attend festivals just like the other locals.

Whereas bigger RPGs make it hard to hide a modded character – lack of voice acting is an easy tell – in *Stardew* it's easy for *SVE*'s characters to blend in. Each new villager's sprites and dialogue portraits fit in with the base game, and the writing is true to the original style. It reads like skilful fanfiction, which it is in a way, with dedicated attention paid to the original lore.

As just one example, I make my usual rounds talking with all the new NPCs to see their dialogue during the spring. The Egg Festival is approaching, at which my farmer and a few other NPCs will compete in an egg hunting minigame around town. Not once but twice I'm called out for participating because it would be unfair to the two actual children.

Sure, I'm a grown-ass adult. It had occurred to me before that it's a bit odd for Abigail and I to compete with small kids in an egg hunt. The day

before the festival Andy scowls and tells me to do the right thing and let the kids win. At the festival itself, Victor suggests that we shouldn't participate at all. Dang, how are you going to just ruin me like that? I don't want to give away too many other neat little surprises, but it's just one of many ways that *SVE* shakes up *Stardew*'s original story.

Stardew Valley Expanded also fleshes out existing characters. Marlon the Adventure Guild's leader has moved the guild's location to the south end of town and has a new schedule of his own instead of being confined to the building. Morris, the corporate croney running the local JojaMart, even gets an expanded role. He's still a bit smarmy, but the events I've seen so far point towards *SVE*'s



THEY'RE ARCHETYPES THAT FEEL A LOT MORE NOW THAN STARDEW'S ORIGINAL CHARACTERS

creator angling for some redemption for the store manager. He may be shady enough to wave Jojamart coupons right outside Pierre's store, but it's possible Morris is just a guy holding down the best career he can manage, suffering under the thumb of corporate expectations.

NEW VIEWS

It's not just *SVE*'s new characters that deserve exploring. The mod has also built on all of *Stardew Valley*'s maps and introduced plenty of new ones as well. In *SVE*, I'm not the only farmer in town. There are other professionals like Andy, Sophia, and Sandy, but almost all of the locals have a garden plot with a few veggies too. At one point in the spring, I wander into town and get pulled into a dialogue event where Leah shows

off the community garden plot that several folks use.

As with the characters, the way *SVE* slightly alters existing maps shows a great understanding of conveniences that players want, but with an execution that keeps the mod feeling like it belongs. More than once, I stumble upon a new shortcut between areas that before would have forced me to walk around.

The beach south of Pelican town used to end on the western bank. Now, Sophia's winery connects the western edge of the beach with the forest south of my farm. Up north, *SVE* removes a few fence posts making it possible to walk from the bus stop to the path connecting my farm to Robin's workshop.

Both are small inconveniences that vanilla *Stardew Valley* solves with warp totem items that I can craft and use to travel directly to those locations. I prefer *SVE*'s tidier solution though. There's already not enough time in *Stardew*'s day to do all the chores I make for myself, so turning the map into a set of connections cuts out the backtracking that previously ate at me.

That's not the only plan FlashShifter has for *Stardew Valley Expanded*'s future. It currently has new areas, houses, events, and characters but there's still more to come. There's a whole list on *SVE*'s Nexus Mods page. Down the line FlashShifter is hoping to add more towns, even more characters, festivals, music, dungeons, and more.

With the amount of detail that mod creator FlashShifter has already dedicated to building around *Stardew*'s existing lore, I can't wait to see what they choose to do when adding Grampleton, which is referenced in vanilla *Stardew* but never actually seen. I'm also hoping to see more of that Morris redemption story that I feel must be in the works.

Stardew Valley Expanded is a near perfect example of an expansion mod. Its clear love of the original game shines through in all of the details it picks up to expand upon and it slips in almost seamlessly to create a larger game than before without stealing the spotlight.

What I find telling is that at the end of each *Stardew* day, I still found myself doing all the things I would normally do: planting crops, rushing to complete the Community Centre, running around giving gifts to my favourite NPCs and so on. With *SVE* installed, I get the treat of new surprises from a game I've already put so many hours into. ■

REMAPPING KEY Find your way around SVE's map

1 EMERALD FARM
Susan's mountain farm is stuck behind a landslide until summer.

2 OLIVIA'S HOUSE
Olivia's house is the biggest on the block.

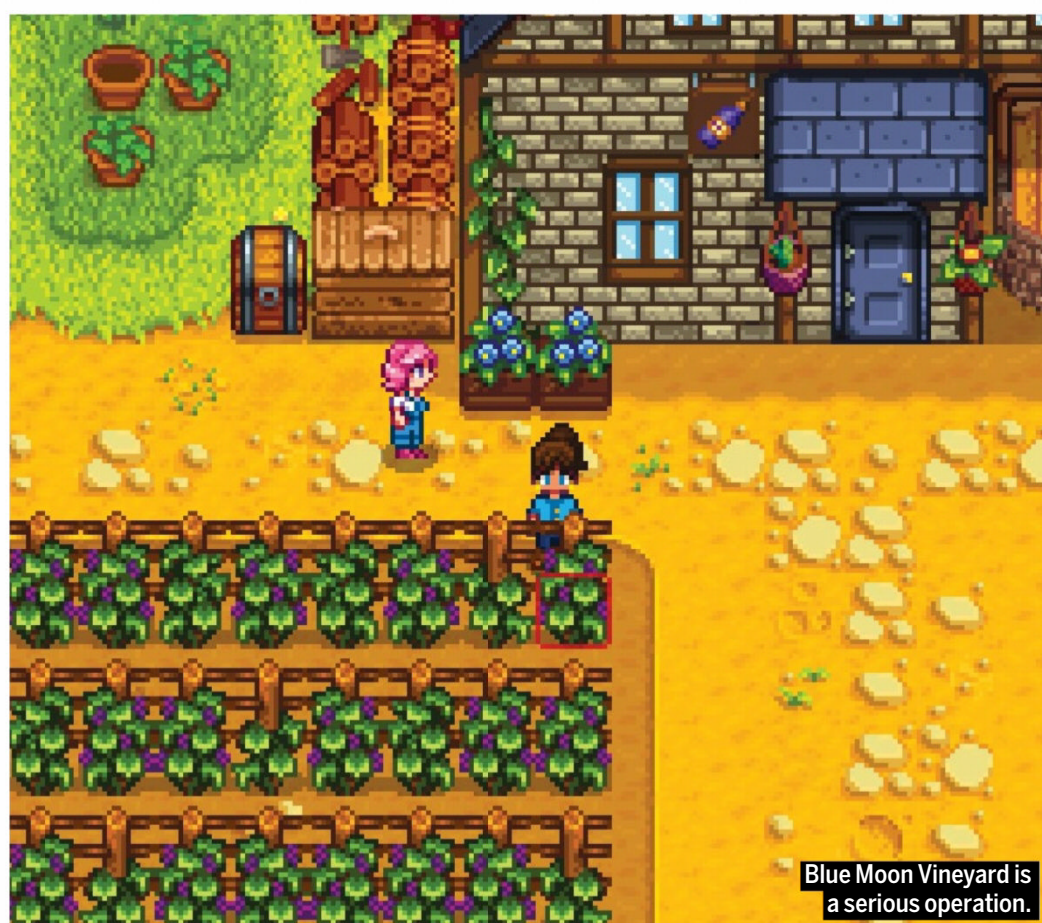
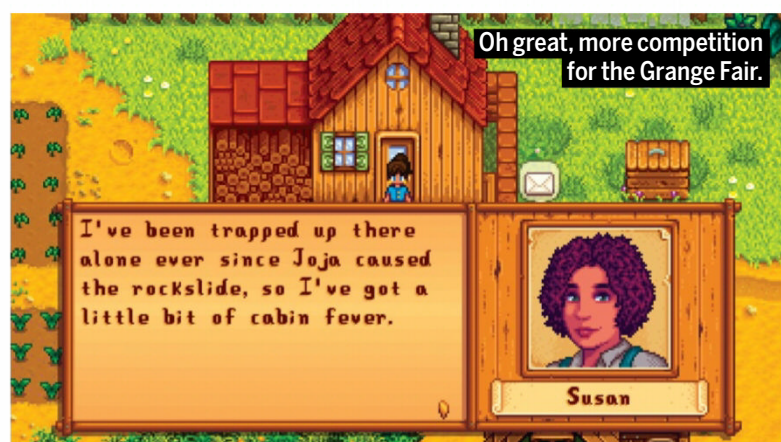
3 ADVENTURER'S GUILD
Marlon's Guild has a new spot right in town.



4 FAIRHAVEN FARM
Andy's small farm is close to the forest where he forages.

5 BLUE MOON VINYARD
Sophia's vinyard connects the beach and the forest.

6 TOWN EAST
East of town is an unused small farm plot.





MASTER LEGENDS OF RUNETERRA

Build the best decks to dominate the card-carrying competition. *By Harry Shepherd*

NEED TO KNOW

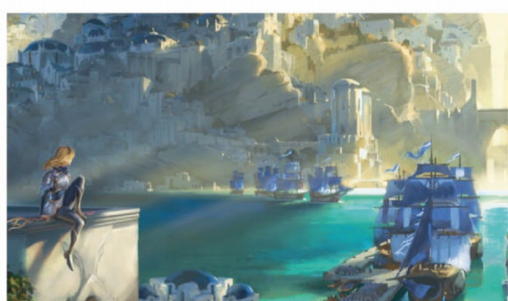
DIFFICULTY
Medium

TIME
Five hours

VITAL LINKS
How to play:
bit.ly/37EZl9f

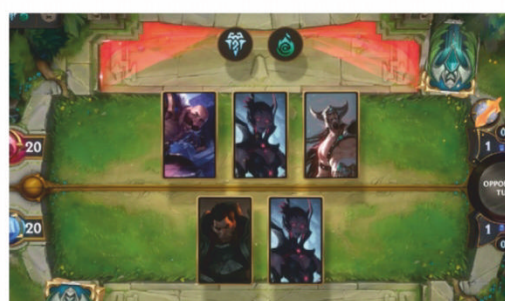
Best decks:
bit.ly/315KiIV

Regions breakdown:
bit.ly/2S2yXVW



REGION LOCKED

1 All *Legends of Runeterra* cards come from one of six different regions: Noxus, Freljord, Demacia, Piltover & Zaun, the Shadow Isles, and Ionia. Each bestows certain characteristics, but you can only choose two region types in each deck.



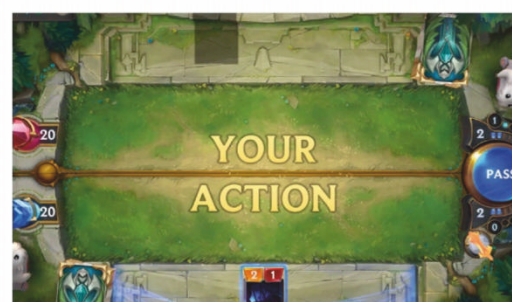
OLE, OLE, OLE

2 Your Champion cards are the most effective units in the game and you can have a maximum of six per deck. It helps to ensure that they're synergised with the rest of your perks and that you can construct your deck around them.



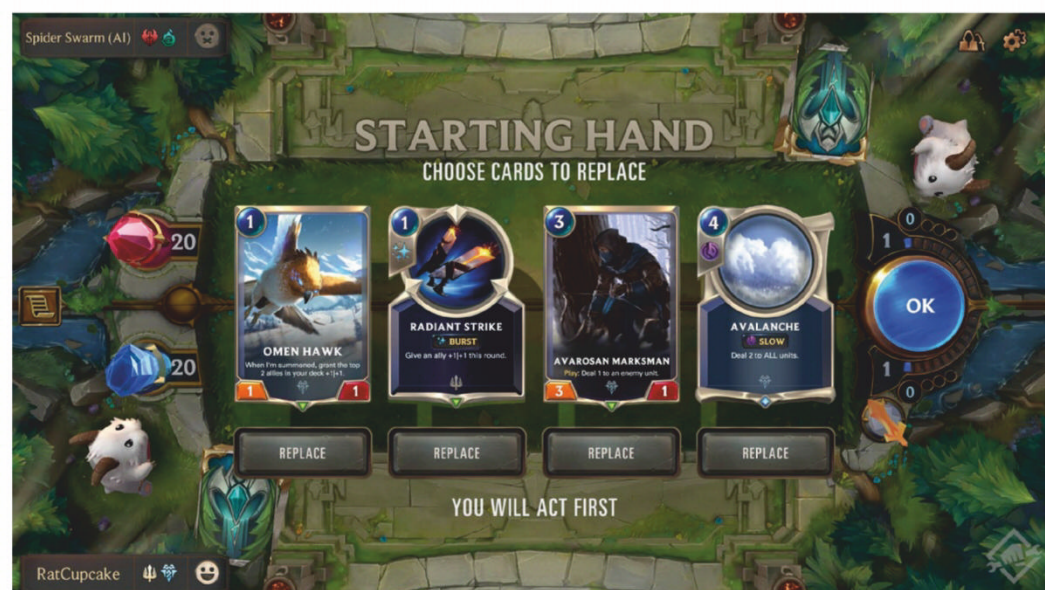
LEVEL, LEVEL

3 The Champions will be the some of the most potent cards in your deck, but even more so when you level them up. Read each one carefully to make sure you understand its upgrade requirements, and plan your match strategy around them.



SPELL BINDING

4 Don't waste your mana on a bad hand: you get one at the start of each round and any mana that you don't use will be converted to up to three points you can use to cast spells in later rounds. Bide your time and unleash magical hell.



SECOND CHANCE

5 Look carefully at your starting hand. Have you got cards that will be useful to have in the first few rounds? If not, it's a good idea to replace some or all of them and hope for something better.

STARTING SMALL

6 Once you get the thrill of drawing a strong card in your first hand it's tempting to keep them, even though you won't have the mana to use them. If they're too expensive to use, replace them.



TUTOR TIME

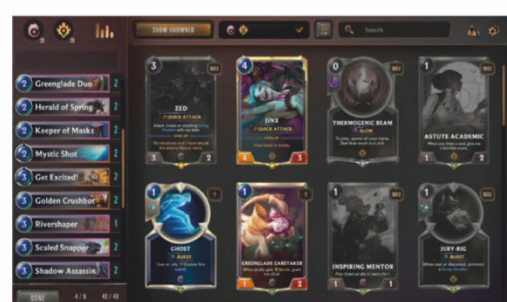
7 *Legends of Runeterra*'s tutorial does a great job of introducing even complete card game newbies to the core concepts. But even if it all seems obvious, give it a proper playthrough – you might be surprised what you learn.

MANA-A-MANA *Get acquainted with the battlefields of Runeterra*



CARDS ON TOUR

8 The 'expeditions' mode does away with pre-made decks and instead has you crafting one over 15 rounds, tweaking your strategy as you go. Enter with in-game currency or real money and see how far you can get. Lose twice and you're out.



META TOGETHER

9 While constructing your own tactics is one of the best parts of *Legends of Runeterra*, online research to get tips on the most effective meta decks can only help. Check out our best decks guide on pcgamer.com for more.



WEEKLY WINNINGS

10 Expand your paltry starter decks with more cards through the weekly vault. From every Tuesday you can open up to three chests containing cards or ways to create them, and their value increases based on your XP haul that week.



SIMPLY THE QUEST

11 One of the best XP generators is daily quests, and you can re-roll them if needed. You also get a hefty 100XP even if you lose in PvP, so it's definitely worth dipping your toes into competitive play. You'll pick up on others' strategies too.



DIVINE INTERVENTION

12 Sometimes a round's different permutations can be overwhelming. The Oracle's Eye, located between each Nexus, shows you how each active spell impacts the board so keep an, err, eye on it.



TOTAL PEACE

PART I

Chasing *Total War: Three Kingdoms*' Imperial throne as a devout pacifist.

By Rick Lane

THE RULES

- 1 Cannot declare war
- 2 Cannot directly attack armies
- 3 Can defend from attack

I've recently written two diary series for PC Gamer, and they both involved an enormous amount of killing. Well, I've had enough. No more swords. No more guns. No more leaking bags of skin at my virtual feet. From here on out, I'll only be offering my enemies cake and presents. I'm going pacifist, and there's nothing you can do to stop me.

To demonstrate my commitment to the non-violent path, I'm going to peacefully play what is by sheer weight of numbers the most violent series ever made, *Total War*. Specifically, I'm playing *Total War: Three Kingdoms*, for which Creative Assembly revamped many of the game's secondary systems, lending elements like diplomacy, economy management, espionage, and character relationships far greater depth and nuance.

My plan is to use these new-fangled mechanics to not-fight my way to victory. I'm not going to declare war on any other faction, nor directly attack their armies in the field. If I am attacked, however, I am allowed to defend myself. Otherwise, this would be a very short article.

For this, I'm playing as the legendary general Cao Cao. Known as a 'strategic mastermind', Cao Cao has the unique ability to manipulate diplomatic relationships between other characters. He's like that kid in the school playground who'd whisper in your ear that some other kid said you smell. He can also artificially improve his own relationships with other warlords, which should be useful for avoiding mass murder. Without further ado, let's put the romance in Romance of the Three Kingdoms!

Unfortunately, there's an immediate hitch in my plan to spread peace and love throughout ancient China, which is that I start my campaign already at war with two other factions, the Imperial usurper Dong Zhuo, and his vassal the Han Empire. Dong Zhuo himself isn't too much of a threat, as his territory is way off to the north. But I'm surrounded by fragments of the Han Empire, and it won't be long before they start nibbling away at what little territory I have to begin with.

The solution is straightforward. Sue for peace! Only I can't, because the Han is a vassal state and can't make peace without Dong Zhuo's blessing, which he isn't going to give because he apparently despises me. It would take far more Credibility (Cao Cao's unique currency for diplomatic manipulation) than I currently have to make the old tyrant even neutral toward me.

There are other problems too. Because I am only a low-ranking noble in *Three Kingdoms'* aristocratic hierarchy, many of the more creative diplomacy options are unavailable to me, as is the ability to field spies. At the same time, I can't sit and do nothing. Although I'm committed to pacifism, letting everyone around me slaughter each other doesn't seem very peaceful either. That's when I start to build an army.

PACIFIST FIGHT

Now, let's be clear, I've no intention of actually fighting anyone. But armies are a bit like genitals: if you wave them around in public, there's a good chance everyone nearby will run away. I reckon I can use my army to lean on the Han without directly engaging them in a fight.

I build a massive army, then I head out and lay siege to some nearby farmland belonging to the Han. Again, surrounding someone's village with a big army isn't actually attacking it. I like to think of it more as 'spirited negotiation'. Luckily, the Han forces in this village are led by an officer, which means I can demand their surrender.

Seeing the enormous, extremely peaceful army surrounding him, the officer wisely agrees to my terms, which are 1. Get out and 2. Stay out. Success! I got myself a nice new farm without shedding a drop of blood. I think I could get used to peace.

This is the thought running through my head when *Total War* casually announces that someone has murdered my dad. Tao Qian. The snake. The vermin. The coward. He's only gone and offed my pap Cao Song. *Total War's* definition is Song died of 'unfortunate events'. But my council are all pointing the finger at Qian. They're also urging me to declare war on the neighbouring warlord, pointing out that, mate, he murdered your actual dad.

Honestly, I wasn't expecting to deal with a dilemma like this so soon. The good news is, there are no repercussions for avoiding war at this point, so I convince my entourage that I'm biding my time. In a way this is true. I can't let Tao Qian's crime go unpunished. I just need to figure out a way to punish him peacefully.

No sooner have I resolved (by which I mean 'put off') this problem, *Total War* detonates another diplomatic bombshell. Dong Zhuo is dead. Less than ten turns into the game, and the mighty, usurping tyrant is worm food. Turns out he's been murdered by his adopted son Dong Min, in what seems to be an emerging theme of dad-death.

Despite the fact I'm now dealing with a patricidal monster, I still cling on to hopes that we might end the

THERE'S AN IMMEDIATE HITCH IN MY PLAN TO SPREAD PEACE AND LOVE





THE PLAYERS

Three Kingdoms has a much greater focus on characters. Here's a rundown of the key players in our diary



DONG ZHUO

The tyrant who usurped the throne of the Han Empire.



DONG MIN

Zhuo's somewhat unhinged adopted son. He's the murderous sort.



HAN EMPIRE

Once the ruling faction of China, now the vassal of Dong Zhuo.



CAO CAO

China's great general and strategist. Also a peaceful guy.



LIU BEI

China's friendly neighbourhood warlord. Trustworthy.



TAO QIAN

A well-respected warlord, and long-time ally of Cao Cao.



YUAN SHAO

Powerful northern warlord. A useful ally but arrogant.



LIU YAO

Small-time warlord to the south. Backstabber.

» conflict between us. To his credit, Min offers me a peace treaty, on the condition that I become his vassal and pay him a regular, extortionate tribute. Fortunately, there's still a large buffer of territory between us, so I can decline without risking his immediate wrath.

REST IN PEACE

In the meantime, I concentrate on spreading peace to the Han Empire, liberating several cities from their warlike grasp. Since there are no officers in these cities, however, my 'siege and surrender' tactic doesn't work. So instead I have to opt for 'siege and starve-out', squatting outside the city until the inhabitants get hungry enough to let me in. An entirely peaceful action, I'm sure you'll agree. I'm not taking any food off them. I'm merely diverting incoming food toward the more urgent cause of national peace.

A couple of cities rise-up in an attempt to forcibly break the siege. Since they are attacking my forces, this counts as a defensive battle, which I am allowed to fight in the name of maintaining peace.

Using this approach, I spread so much peace through the nation that I get promoted to Second Marquis, which unlocks a bunch of new powers including espionage, forming coalitions, and additional armies. I celebrate by

building a second army to deal with Han forces sniffing around my territory. I'm not going to attack them, just persuade them to march back across their own borders, like ushering a spider into a glass.

The general I hire to lead this army turns out to be an enemy spy, and in one turn she disappears from the map, taking with her some loot I got from my peaceful campaigning. Fine! I then have to hire another general and raise more forces to keep the Han armies at bay.

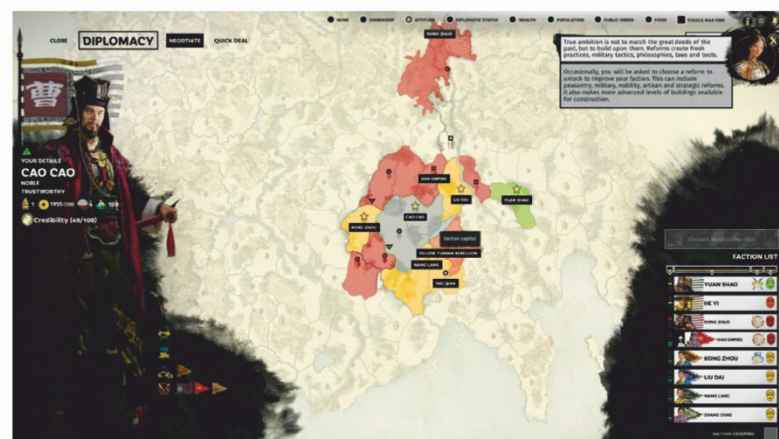
While my armies play cat and mouse with the Han, I turn my focus to preventing any further conflicts, using my Credibility to boost my diplomatic standing with several warlords bordering my territory, then signing non-aggression pacts with them. I'm too slow to stop a southern warlord named Liu Yao from raising his banners against me. But he then proceeds to do precisely nothing, so I figure I don't need to worry too much.

After this, a powerful warlord named Yuan Shao invites me to join a coalition, which is like an alliance but less official. I accept, and suggest that he also invite Liu Bei, aka the nicest warlord in ancient China. Shao agrees to this. Finally, my mission of peace is getting somewhere!

Naturally, my council picks this moment to remind me I'm yet to retaliate against Tao Qian. What's particularly ironic about this is that Tao Qian is dead. I've bided my time for so long that Qian, who was an old man at the time he decided to *murder my dad*, has simply succumbed to age. You'd think him dropping dead would put a pin in my council's vengeance-balloon. But if dynasties are good at anything, it's holding a grudge, and the council now wants me to exact my revenge upon Qian's son and heir, Tao Ying.

I SPY

In an attempt to placate them, I dispatch a spy named Lu Zhi into Ying's court, with the vague hope of toppling the faction from within. Before I can consider the problem any further, however, Liu Yao finally decides to act against me, attacking my most profitable trading port. I man a





noble defence, but it's ultimately swept aside by Yao's army. Luckily, I have a sizeable peacekeeping force stationed in the area, which I use to immediately surround the trading post. I demand that Yao, who is leading the army personally, surrender. He responds by trying to break the siege, forcing me into conflict.

What results is the first proper battle I've had in the campaign, taking place on a forested hillside in the chill of winter. Yao's army outnumbers mine, but much of his force is comprised of archers, while I've got four units of cavalry to his one. I use my horsemen to harass his archers from the flanks while my infantry engages his head-on. When the archers rout, I slam the cavalry into the rear of his infantry, and their resolve cracks. Liu Yao is killed in the midst of the fighting, struck down by one of my generals. What can I say? That's what going to war gets you.

You'd think such a battle would satisfy my council's bloodlust. But no, they still have their eyes fixed on Tao

Ying. My spy has wrangled his way into the court as a noble, but there's not much he can do there. And I can't go to war with Ying as I'm an advocate of peace.

That said, there are plenty of other warlords who still go in for the whole 'war' thing. Perhaps I can make use of them. Alongside his ability to manipulate diplomatic relations, Cao Cao also has the power to incite proxy wars,

which basically amounts to persuading someone to go to war on his behalf. So I drop the lovely Liu Bei a line. After some small talk he agrees to go to war with Tao Ying on my behalf.

Literally on the next turn, Tao Ying's faction is eliminated. I'm slightly taken aback by Liu Bei's effectiveness. In fact, he's a

little too effective, as my poor spy Lu Zhi is killed in the fighting. I'm glad that Liu Bei is my friend for the moment, as his faction is somewhat more powerful than mine. Such concerns are for another time, however. What's important is that Cao Song's death has been avenged, and without a drop of blood on my hands. ■

HE RESPONDS BY TRYING TO BREAK THE SIEGE, FORCING ME INTO CONFLICT





WHY I LOVE

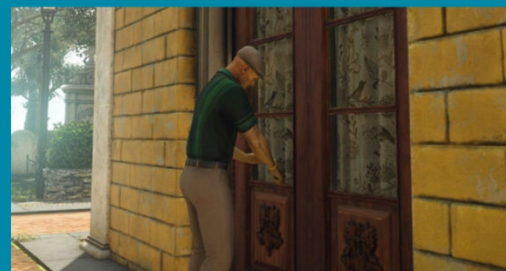
WHAT MAKES GAMES SPECIAL

CLIMBING THE LEADERBOARDS IN HITMAN 2

Improving my time gave me a greater appreciation for IO's stealth sandbox. *By Phil Savage*



RIGHT: 47's only gone and locked himself out of the house again.



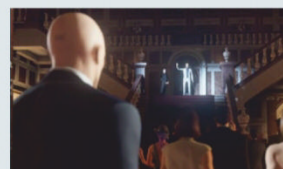
When PC Gamer's former editor-in-chief Samuel Roberts tweeted that he'd claimed the top spot on the leaderboards for the Hawke's Bay level of *Hitman 2*, I felt like I had something to prove. I'd reviewed *Hitman 2*. I'd reviewed every episode of 2016's *Hitman*. While I'm open to the possibility that other people are better at the series than me, I wasn't about to let someone who worked for the same magazine hold the top spot.

I returned to the New Zealand beach house and started optimising. Maybe if I hid over here? Perhaps if I tossed a coin over there? An hour of experimentation later, and I'd beaten Samuel's score. I'd also realised there much more I could do. My current time was fine, but I was pretty sure it could be beaten.

Hitman is an interesting leaderboard game because speed isn't everything; you also need style. The conditions required for a Silent Assassin run – never spotted, no noticed kills, no bodies found, no recordings – each award a flat 20,000 points, for an 80,000 score bonus. Without that, it doesn't matter how fast you finish, you'll struggle to earn enough points to reach the top. Isolating the mission's target, Alma Reynard, takes time. As more people joined our ad-hoc competition for score supremacy, and as our completion times reached down to the three minute mark, it was clear that further gains would require inventive solutions.

For me, *Hitman* isn't really a game about killing. That's just set decoration for an intricate puzzle box of interlocking systems and behaviours. Chasing a good score often means exploiting the

TIME TRIAL *Can you beat my scores?*

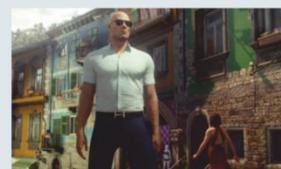


PARIS THE SHOWSTOPPER

Score: 183,698

Time: 3:17

Tip: Find the right starting condition and make good use of drainpipes.



SAPIENZA WORLD OF TOMORROW

Score: 163,623

Time: 11:22

Tip: Find a better route. My one is pretty stupid.



HAWKE'S BAY NIGHTCALL

Score: 195,744

Time: 1:46

Tip: Just syringe and run. Syringe. And run.



COLORADO FREEDOM FIGHTERS

Score: 94,630

Time: 25:16

Tip: I botched this one and I don't want to do it again. Here's a freebie.

consequences of *Hitman*'s consistent ruleset in a way that further strips the already flimsy sense of immersion. You don't lose your Silent Assassin rank, for instance, if a body looks like it died a natural death. You can lace a drink with poison, and, when the body's found, it'll be written off as a heart attack. That rings true even in the most absurd extreme. Which means if I toss a coin to distract Alma's guards and then inject Alma with a poison syringe in the brief moment they look the other way, I still get a Silent Assassin rating. I also get a time of 1:46, thoroughly beating the rest of the group.

TRIGGER HAPPY

Sapienza is *Hitman*'s best level, and also the leaderboard time I'm most proud of. After trading back-and-forth with Samuel, I held the lead with an 11:22 run.

Beginning in the mansion grounds disguised as a gardener, I run to a water bottle on a nearby table and spike it with emetic. Then I make a bee-line for the observatory. There's a VHS tape on the top floor that, when open-palm slammed into the video player below, causes my first target, Silvio Caruso, to encounter a projected screen of childhood memories. He dismisses his guards to reminisce and I kill him and hide his body. The first target is down in less than two minutes.

I run to a bathroom near the observatory and find Caruso's golf

coach puking his guts out thanks to the water I'd laced. This is the crux of my run, firing triggers to line up events so they complete after I've finished doing something else. After the coach is subdued, I call his lover, my second target, to arrange a rendezvous. I sprint to the church on the other side of town to stand by the confession booth to trigger an event. I sprint back to the mansion to kill the second target, who's moved to a less secure location to meet her paramour. I sprint back to the

PLAYED AT THIS SPEED, IT'S LESS ABOUT WAITING AS IT IS SPRINTING WITH PRECISION

church, arriving just in time for the conclusion of the event I triggered – letting me steal an item that quickly completes the final objective. Played at this speed, it's less about waiting as it is sprinting with precision.

I've always loved *Hitman* as a sandbox full of things to be poked and exploited. But it wasn't until I started competing for score that I realised just how little of its already flimsy sense of immersion I needed. Give me a playground of overlapping AI behaviours, an objective, and a need to be the best – more out of spite than pride – and I'll enjoy hours trying to build a route that's, most importantly, faster than Samuel. ■

NEED TO KNOW

RELEASED
November 13, 2018

EXPECT TO PAY
£47.45

OUR REVIEW
84%

LINK
[hitman.com](https://www.hitman.com)



RIGHT: Quickly, quickly, stabby monkey.





Edgeworth, being smug as always.

PHOENIX WRIGHT: ACE ATTORNEY TRILOGY

Revisiting Capcom's flamboyant courtroom drama. *By Rachel Watts*

This collected trilogy has had quite the journey to PC. The three included games were originally released in 2001, 2002 and 2004 as Japan-exclusive GBA titles. After success over there, they made their English debut in North America and Europe, launching on the Nintendo DS. From there the trilogy was once again ported to the Nintendo Wii and iOS in 2013 and then again onto the 3DS in 2014. The three games finally made their debut onto PC last year, bundled as the *Phoenix Wright: Ace Attorney Trilogy*. The PC port lets new

players experience the visual novel series for the first time, and allows fans to revisit the thrills of being back in the courtroom.

Bouncing from console to console, you would think the trilogy would have been through major changes. But, apart from a graphics revamp and a few small mechanical tweaks, the *Ace Attorney* trilogy has been left relatively untouched. Playing it now on PC is almost the same as when it was first released over two decades ago. Capcom's courtroom adventure has humour, suspense, thrills, twists, and turns that remarkably still hold up today from when I played it back

in 2005. And I will swear to that under oath.

The trilogy includes the first three games in the series: *Phoenix Wright: Ace Attorney*, *Phoenix Wright: Ace Attorney – Justice for All*, and *Phoenix Wright: Ace Attorney – Trials and Tribulations*. It's not just an anthology of interesting murder investigations, but also features wonderfully flamboyant characters, witty wordplay, suspenseful twists, and no end of over-the-top drama.

Though since playing all those years ago, I've become a bit more literate in what a lawyer actually does, and when playing through the games again there are definitely parts that deserve a raised brow and a side-eye. The series throws courtroom etiquette out the window, and usually the law book right along with it. But hey, it's all worth it for the sake of the capital D Drama. Objection overruled.

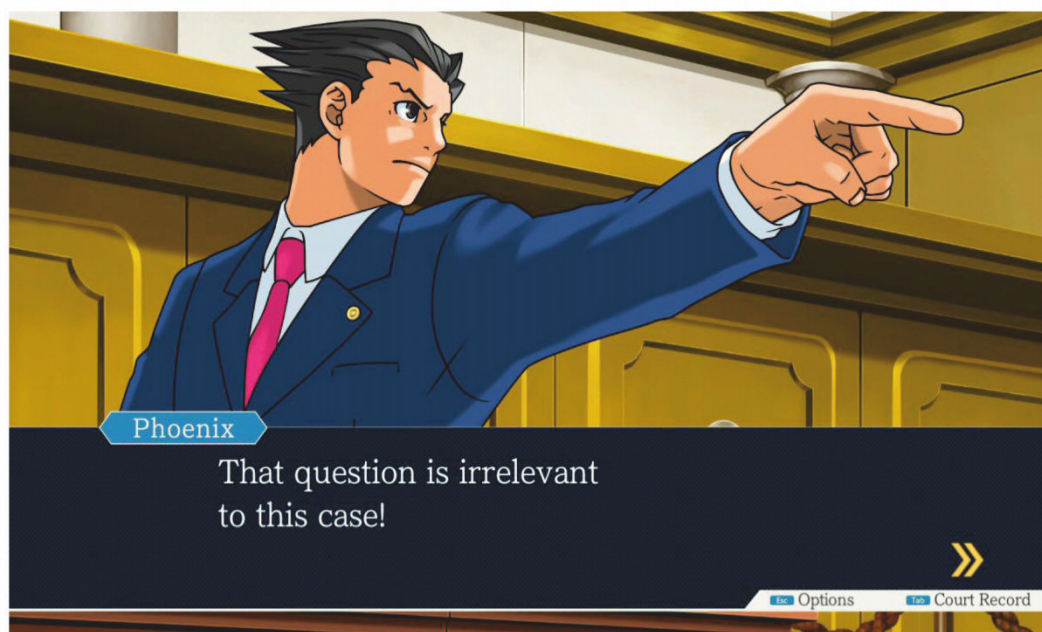
NEED TO KNOW

RELEASED
April 9, 2019

DEVELOPER
Capcom

PUBLISHER
In-house

LINK
ace-attorney.com/trilogy



It's not afraid to get completely ridiculous at times, but always couples it with moments of satisfying revelation and a truly epic flair for melodrama. Backstabbing? You got it. Tragedy? Naturally. Lawyers slamming hands on desks, aggressively pointing and shouting at each other? Of course. Each game is more outrageous than the last, with the ultimate case in the final game being a crescendo of events that would leave Judge Judy speechless.

CRIME AND PUN-ISHMENT

The trilogy follows the story of Phoenix Wright, a rookie attorney wanting to make a name for himself as a skilled defence lawyer. You play as this enthusiastic upstart as he tries to prove his client's innocence against false accusations (which 99.9 per cent of the time is a murder charge). There are a handful of cases in each game, and they have two stages: evidence gathering, and then the trial.

In the first stage, you need to gather important pieces of evidence, which means searching the crime scene for clues and interviewing witnesses for testimony to help your investigation. Back in the DS days,

THE LAWS OF FASHION

How to look the part of an Ace Attorney

1 HAIR GEL

Every attorney needs an outrageous hairstyle. It's an intimidation tactic.

2 ATTORNEY BADGE

Proof of all that time and money spent slaving away in law school.



3 DRESS TO IMPRESS

Even if you completely flop, you can still do it in style with some natty threads.

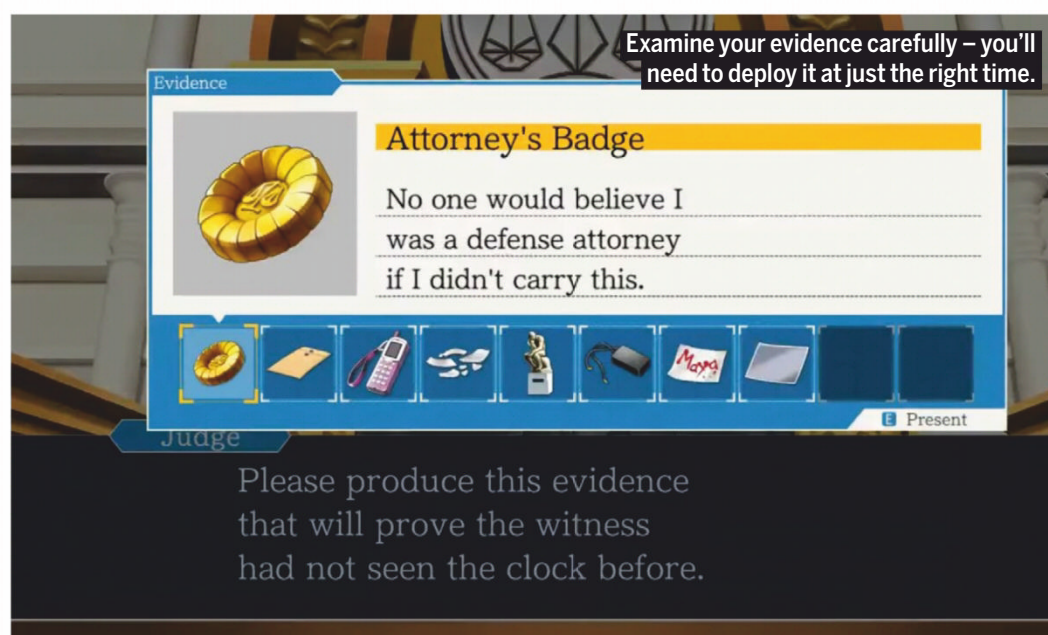
4 OVERCONFIDENT EXTERIOR

Hide the fact that you're completely out of your depth.

this meant tapping my stylus over every millimetre of the small screen making sure I didn't miss anything. An improvement for the PC version is a magnifying glass icon that has a tick when I hover over a place I've already searched – it makes my search rather less frustrating.

A bulk of the investigation is speaking to witnesses and characters connected to the case at hand. There's a lot of text to read through, but the writing is as sharp and hilarious as Phoenix's spiky hairdo. Revisiting the cases allows me to experience again some of the trilogy's colourful characters, like the grumpy grandma, Wendy Oldbag, a security guard who is vital in a case, but every third word of her testimony is calling you a whippersnapper. Or Mike Meekins, an officer who is better at being a wet noodle than a member of the police force.

The investigation phase gives you an idea about what went down, but the full truth of what happened is all revealed in the trial itself. Gathering evidence sets the groundwork for information that comes to light in the courtroom, but throughout my replay, I just couldn't wait until the



» courtroom scenes. In the two later games, *Justice for All* and *Trials and Tribulations*, the series tries to liven these parts up but they never match the rush of excitement found in the courtroom. You might have a roundabout idea about how the crime was carried out, but it isn't an *Ace Attorney* trial if the case isn't turned on its head halfway through – and knowing there's a twist coming makes me impatient to get there.

MAKIN' THE LAW

When you're done gathering everything you need for trial, the second stage of the story begins. It's time to present your case in court. The trial is structured around interviewing witnesses and cross-examining their testimony with your evidence. You also have to rebut the prosecution's accusations as the trial develops. But that's where the overlap between how courtrooms work in reality and how they work in *Ace Attorney* ends.

Capcom doesn't just see the courtroom as a place of stuffy back-and-forth rebuttals, but a cross between a high stakes battle arena and Spanish telenovela. Surprise

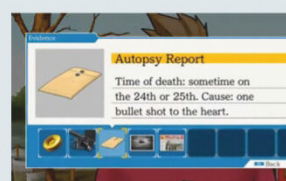
witnesses, evidence submitted mid-trial, and testimonies that keep changing every few minutes probably wouldn't fly in a real criminal case. But in *Ace Attorney* they provide escalating drama as your understanding of the proceedings keeps shifting.

Opposite Phoenix as he battles for his client's innocence are the prosecuting attorneys, and each is more ruthless than the next. In the first game, this mantle is taken up by the dashing but cold-hearted Miles Edgeworth. He's an undefeated lawyer who's determined to get a guilty verdict in every case. He's brutal, but he does rock a cravat.

Joining you on the defence bench is your assistant, Maya Fey, a spirit medium (yep) who is the next leader in line of a powerful clan of mystics. When you are totally stuck she gives you little hints on what you should focus on to move the case forward, and has helped me out of a tough spot a number of times.

There's also the bumbling but lovable detective Dick Gumshoe who works for the prosecution, and sitting above everyone in the courtroom is the bushy-bearded judge, who is unfortunately very easily swayed. The graphics-revamp makes the game's previously rough pixelated edges look more sleek and polished

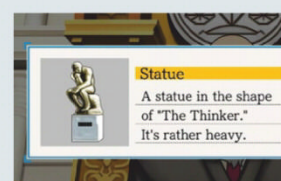
TRIAL AND ERROR *Top tips for cross-examining tricky witnesses*



1 Check the autopsy report. It updates automatically as more details get revealed.



2 Press every part of a testimony. Witnesses can reveal more info that you can use.



3 Read the description of every piece of evidence – you might have missed something.



4 Ask Maya for help. She always gives small hints if you're in a bit of a pickle.

Wendy Oldbag may be elderly
but she's got plenty of sass.

Oldbag

Know this, whippersnapper!
This old lady NEVER forgets
a slight or insult!

Esc Options

Tab Court Record

EXPECT JUICY FAMILY DRAMA, CHILDHOOD FLASHBACKS, AND CRUEL BETRAYALS

which I greatly enjoy, mainly because Von Karma, a monster of a prosecutor, doesn't terrify me as much as he does with all his scary jagged parts smoothed out.

The same core cast of characters appear throughout multiple cases, to the point where it plays out like a soap opera, their lives entangled with the investigations. Expect juicy family drama, childhood flashbacks, and cruel betrayals.

As you make your way through the climactic witness cross-examinations, you need to listen to their testimony and present evidence that proves a contradiction, catching them out on the stand. All the clues you have collected during the first stage comes into play at some point during the trial. This is where the main puzzle element of the game comes in. Knowing your evidence, the details of the case, and when to present them to the court is how you



get to the truth of the mystery. There you go, those are my top tips as a seasoned defence attorney.

ACES HIGH

The *Ace Attorney* series does have some pitfalls when it comes to presenting evidence. Some moments where you have to prove a contradiction can be pretty obscure, and if you get it wrong your courtroom health bar, prominently displayed in the top right corner of the screen, depletes with a small but dramatic explosion.

Even having already playing through these cases and knowing who committed the crime, and understanding roughly how the trial would play out, there were moments where I still couldn't figure out which evidence I needed to present at a particular moment.

Luckily, the PC version has multiple save slots, meaning you can save and load to your heart's content. You can also dip in and out of the different games in any order you want, so if you're stuck you can hop into another one for a break.

Issues like these are few and far between, though, and most of the

time the game's puzzles are solvable with some outside-the-box thinking. But, of course, Edgeworth isn't going to just let you command the courtroom as you please, and one of the best feelings in the *Ace Attorney* series, that continues through its multiple spin-offs and sequels, is going head-to-head with the opposing prosecutor.

As the trial develops, events begin to escalate and when you're at the core of the case is where the games really shine. As one of the attorneys hits a crucial bit of information, the music will start to swell. Suddenly, you're being catapulted back and forth across the courtroom as Phoenix and Edgeworth rebut each other's points. There's desk slamming, finger pointing, "Objection!" flying left and right. It's impossible not to get swept up in it.

There aren't many games that are filled with thrills and humour like the *Ace Attorney* trilogy, and my replay only proves for me that its sharp humour hasn't dulled at all over the years. The melodrama and mysteries are tied together with a flair that still makes it a standout in the detective and visual novel genres. ■

EMMA MATTHEWS



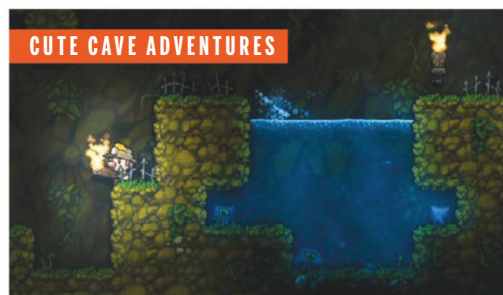
I'm new and still unsure how I landed this job. I love FPS games but people often mistake me for a child on voice chat. Sometimes I correct them.



SLAY THE SPIRE

megacrit.com

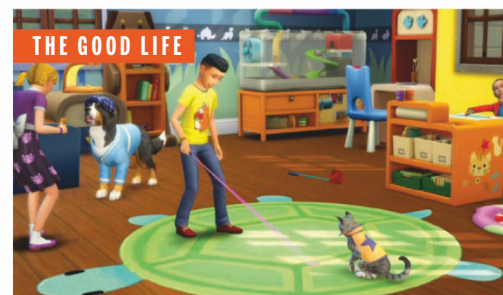
→ A deck-building roguelike that starts tricky and somehow gets much harder. A single decision can unravel a run quickly, yet here I am steaming into my fifth attempt this session in hopes of ascending once more. Its four classes each feel unique, and I've experienced waves of favouritism with each.



SPELUNKY

spelunkyworld.com

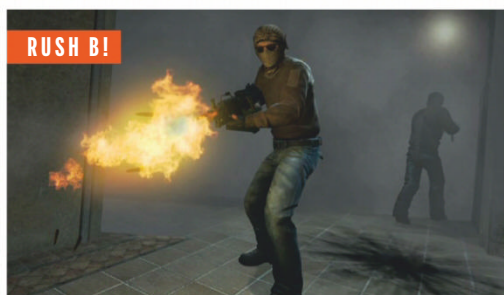
→ This roguelike platformer is adorable yet deceptively difficult. Every run is different, and you can even go to Hell. The pug is easily the GOAT videogame dog depiction and that isn't up for discussion! There are plenty of tricks to master: try looting the shop without using bombs or ropes. It's... pretty hard.



THE SIMS 4

ea.com/the-sims-4

→ Every play session of *The Sims 4* ends with, "It can't be that time already!". This game eats up your life like no other, but it's my go-to for switching my brain off. My pets keep running away from me and I still haven't worked out how to be a Global Superstar yet, but my interior design game is on point.



COUNTER-STRIKE: GLOBAL OFFENSIVE

blog.counter-strike.net

→ Sometimes I'm graced with friendly teammates, other times, they're horrible. It's the luck of the competitive MM draw. With my Karambit Lore in hand, I love CS:GO's maps and smoke grenade placements. There's nothing like hitting an ace with a USP-S.

MUST PLAY

A PERSONAL LIST
OF THE BEST
GAMES YOU CAN
PLAY RIGHT NOW

by Emma Matthews



STREET FIGHTER V

streetfighter.com

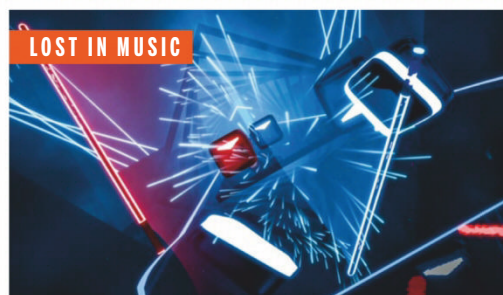
→ I'm new to fighting games. My mind still runs about twice as fast as my hands, but landing a max damage punish on an opponent that just keeps throwing out desperate Dragon Punches makes me feel incredibly powerful. Ryu will forever be my hero, but I fear M Bison is luring me to the charge side.



SEKIRO: SHADOWS DIE TWICE

sekirothegame.com

→ Not only is *Sekiro* beautiful to explore, but the way it dangles victory in front of you before mercilessly ripping it away just keeps coaxing me back. Finally defeating an enemy feels like a true achievement, and I'm quite content hanging around the Ashina Outskirts until we receive more news on *Elden Ring*.



BEAT SABER

beatsaber.com

→ This is *Dance Dance Revolution* with your arms. The beauty of VR is that I can wave my limbs around unapologetically to the latest custom tracks without the fear of catching a glimpse of myself in the mirror. I've convinced myself that this counts as a workout, so enjoy it as part of a balanced lifestyle.



CALL OF DUTY: MODERN WARFARE (2019)

callofduty.com/modernwarfare

→ Gunfight is the only mode for me now. Playing 2v2 with identical loadouts condenses it into a few rounds of pure skill. Some maps are really terrible, but making up names for some of the zones and strategising with a partner leads to electrifying matches.



Future Publishing Ltd Quay House, The Ambury, Bath BA1 1UA

Tel: 01225 442244 | **Email:** letters@pcgamer.com

www.pcgamer.com

Brand Director Tim Clark

Global Editor-in-Chief Evan Lahti

PC GAMER UK

Editor-in-Chief, UK Phil Savage
Print Editor Robin Valentine
Online Editor, UK Tom Senior
Section Editor Andy Kelly
News Editor Fraser Brown
Guides Editor Harry Shepherd
Staff Writer Rachel Watts
Guides Writer Emma Matthews
Art Editor John Strike
Production Editor Tim Empey

PC GAMER US

Executive Editor Tyler Wilde
Senior Editor Wes Fenlon
Senior Reporter Steven Messner
Staff Writer James Davenport
Staff Writer Chris Livingston
Weekend Editor Jody Macgregor
News Lead Andy Chalk
Hardware Staff Writer Joanna Nelius

CONTRIBUTORS

Matt Elliott, Ian Evenden, Tom Hatfield, Liz Henges, Phil Iwaniuk, Alistair Jones, Luke Kemp, Rick Lane, Jody Macgregor, Lauren Morton, Chris Schilling, Tom Sykes, Philippa Warr

PHOTOGRAPHY & ILLUSTRATION

Photographer Olly Curtis
Spy Illustrations David Lyttleton

DIGITAL PRODUCTION

Group Production Editor Steve Wright
Editorial Operations Assistant Nick Lee

PRODUCTION

Head of Production US & UK Mark Constance
Production Project Manager Clare Scott
Advertising Production Manager Joanne Crosby
Digital Editions Controller Jason Hudson
Production Manager Fran Twentyman

ADVERTISING

Commercial Director Clare Dove
Advertising Director Tom Parkinson
Account Director Jeff Jones
Account Manager Kevin Stoddart

INTERNATIONAL LICENSING

Head of Print Licensing Rachel Shaw

SUBSCRIPTIONS & CIRCULATION

Head of subscriptions Sharon Todd
Head of Newstrade Tim Mathers

SENIOR MANAGEMENT

Chief Content Officer Aaron Asadi
Commercial Finance Director Dan Jotcham
Head of Art & Design Rodney Dive
Group Art Director, Games Warren Brown

SUBSCRIPTIONS Email: contact@myfavouritemagazines.co.uk | **UK orderline:** 0344 848 2852 | **International orderline:** +44 (0)344 848 2852 | www.myfavouritemagazines.co.uk

DISTRIBUTED BY Marketforce, 5 Churchill Place, Canary Wharf, London, E14 5HU | **Tel:** 0203 787 9001 | www.marketforce.co.uk

LICENSING Email: licensing@futurenet.com

ISSN: 1351-3540

All contents © 2020 Future Publishing Limited or published under licence. All rights reserved. No part of this magazine may be used, stored, transmitted or reproduced in any way without the prior written permission of the publisher. Future Publishing Limited (company number 2008885) is registered in England and Wales. Registered office: Quay House, The Ambury, Bath BA1 1UA. All information contained in this publication is for information only and is, as far as we are aware, correct at the time of going to press. Future cannot accept any responsibility for errors or inaccuracies in such information. You are advised to contact manufacturers and retailers directly with regard to the price of products/services referred to in this publication. Apps and websites mentioned in this publication are not under our control. We are not responsible for their contents or any other changes or updates to them. This magazine is fully independent and not affiliated in any way with the companies mentioned herein.

IT'S ALL OVER...

QUEST ASSURED

Behold the ultimate RPG party, more than a match for any dark lord



LAGO IV

Class: Warrior

Who could tank better than a *World of Tanks* tank? Let's see those idiot orcs get past that.



AGENT 47

Class: Rogue

Turns out he disguised himself as a Mind Flayer and killed the boss monster three weeks ago.



G-MAN

Class: Wizard

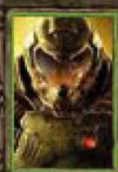
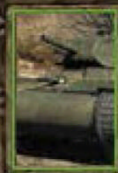
We're not 100 percent clear what his magical powers actually are, but he seems like he'd be useful.



DOOM GUY

Class: Healer

Listen, he may not be the conventional choice, but he always knows where the heath packs are.



...UNTIL **APRIL 02**

PRODUCT CODE

RYZ8

AMD NAVIGATOR



AMD Ryzen 5 3600X - 6 Cores - 12 Threads - (O.C 4.3Ghz)
ASUS TUF X570-Plus Gaming
CORSAIR 16GB DDR4 3600Mhz - RGB
INTEL 512GB M.2 NVME 660P
SEAGATE 2TB Sata3 HDD
AMD 5700XT 8GB
CORSAIR iCUE 220T RGB White
650W PSU Silverstone Gold
MICROSOFT Windows 10



£1249.99

PRODUCT CODE

AMD ABYSS

RYZ6

AMD RYZEN 5 2600X - 6 Cores - 12 Threads
ASUS TUF B450-Plus
CORSAIR 8GB DDR4 2400Mhz
INTEL 512GB 660P M.2 NVME
SEAGATE 1TB Sata3 HDD
AMD RX570 8GB
KOLINK Stronghold + FSP 450W PSU
MICROSOFT Windows 10



£699.99

PRODUCT CODE

COF6

INTEL i7 SUPERNOVA



INTEL Core i7 9700K - 8 Cores - 8 Threads (O.C 5.1Ghz)
ASUS PRIME Z390-A
ADATA 16GB DDR4 3600Mhz RGB
INTEL 1TB 660P M.2 NVME
SEAGATE 2TB Sata3 HDD
NVIDIA RTX2070 8GB
IN-WIN 101C Window + Silverstone 650W PSU
MICROSOFT Windows 10



£1599.99

FOREGONE



AVAILABLE 27.02.2020



FOREGONEGAME.com

©2020 Big Blue Bubble Inc. All Rights Reserved.